



TRANSACTIONS
OF THE
NEW ZEALAND INSTITUTE,
1900.

I.—ZOOLOGY.

ART. I. — *Synopsis of the Diptera brachycera of New Zealand.*

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[Read before the Philosophical Institute of Canterbury, 3rd October, 1900.]

IN 1874 I published in our Transactions a list of the New Zealand *Diptera* which had been described before 1870, and in the same year Mr. A. G. Butler, of the British Museum, edited the "Insects of the Voyage of H.M.S. 'Erebus' and 'Terror,'" in which two new descriptions were given.

In 1881 the Geological Survey of New Zealand published a catalogue of our *Diptera*—compiled by me—which gave the original descriptions of the species, but without making any attempt to point out mistakes. In 1884 Mr. W. Kirby, of the British Museum, supplemented this catalogue by describing, in the "Transactions of the Entomological Society of London," three of the species which had been named, but not described, by Adam White, and by adding the names of four others which were unknown to me.

In 1896 Mr. P. Marshall published, in vol. xxviii. of the "Transactions of the New Zealand Institute," two papers which added largely to our knowledge of the *Cecidomyiidae* and the *Mycetophilidae*, and last year I undertook the *Tipulidae*.

The time, I think, has now arrived when a revision of the whole of our *Brachycera* may be made with some prospect of success, and the present paper has for its objects—(1) The

correction of the synonymy of the known species; (2) the omission of names which have been erroneously included in our fauna; and (3) the description of the new species which are in the collection of the Canterbury Museum.

The omission of species which have been placed erroneously on our list is a difficult task, for some insects are so local and so irregular in their appearance that they may escape a second capture for a long time. Nevertheless, it is necessary that the work should be attempted, and I have therefore omitted all those species which I do not believe were ever taken in New Zealand. Most of these omitted species were originally stated to have been found near Auckland during the short stay there of the Austrian frigate "Novara" in 1859, but have never been found since. Several of these are now known to occur in other countries. In these cases there can be no doubt but they have been put down to New Zealand in error, and this makes it probable that there may be other mistakes which have not yet been found out. Indeed, the localities of the insects given in the "Voyage of the 'Novara'" must always be looked upon with suspicion until confirmed by some other collector. I have seen no description of *Paramenia semiauriceps*, Brauer and Bergenstamm (Denk. Akad. Wissen. Wien, vol. 56 (1890), p. 171); but as it belongs to a family (*Dexidae*) which, to the best of my knowledge, does not occur in New Zealand I have omitted it also.

I have to thank Captain T. Broun for sending me a collection from the Auckland District, Mr. G. V. Hudson for one from Wellington and Nelson, and Mr. W. W. Smith for a collection made at Ashburton, in Canterbury. By these means the Museum now contains most of the described species. Those that are still unknown to me are mentioned in the text. I have included the introduced species as well as the natives, partly because collectors might be puzzled by them if descriptions were not given, and partly as a record of what species have been introduced and when they were first recorded, if that is known.

This list includes 191 species, of which six are doubtful inhabitants,* but which I retain for the present. Of the remaining 185, ten or eleven have been introduced from Europe, and three probably from Australia or the islands, thus leaving 171 or 172 native species. Of course, many more remain to be discovered. The most remarkable species are *Exsul singularis* and *Cerosomyia usitata*. Unfortunately, I have only a single specimen of each, but I could not pass them over on that account.

* These are *Odontomyia australiensis*, *Clitellaria aberrans*, *Milesia bilineata*, *Sciomyza nigricornis*, *Sapromyza sciomyzina*, and *S. decora*.

Series ORTHORRHAPHA.

KEY TO THE NEW ZEALAND FAMILIES.

Third joint of the antennæ annulated.			
Costa stopping at the tip of the wing	..	..	<i>Stratiomyidæ.</i>
Costa continued all round the wing	..	..	<i>Tabanidæ.</i>
Third joint of the antennæ simple.			
Thorax and abdomen inflated	..	..	<i>Cyrtidæ.</i>
Thorax and abdomen not inflated.			
Five posterior cells.			
Empodia styliform; fourth posterior cell			
often closed	..	..	<i>Asilidæ.</i>
Empodia absent; fourth posterior cell			
always open	..	..	<i>Therevidæ.</i>
Four posterior cells	..	..	<i>Bombylidæ.</i>
Three posterior cells.			
Second basal cell separated from the discal			<i>Empidæ.</i>
Second basal cell united to discal	..	..	<i>Dolichopodidæ.</i>

Family STRATIOMYIDÆ.

“Three basal cells, much prolonged; veins of the main trunks very crowded anteriorly; both intercalary veins usually existing; costal vein reaching only to the middle of the wing. Third joint of the antennæ annulated, sometimes divided into several portions. Tibiæ without spurs; empodia much developed, pulvilliform” (Loew).

KEY TO THE NEW ZEALAND GENERA.

Scutellum with four spines.			
An intercalary vein from the discal cell	..	..	<i>Exaireta.</i>
No intercalary vein from the discal cell	..	..	<i>Beris.</i>
Scutellum with two spines.			
Posterior veins of the wing weak	..	..	<i>Odontomyia.</i>
Posterior veins of the wing strong	..	..	<i>Clitellaria.</i>
Scutellum without spines	..	..	<i>Cyclogaster.</i>

Sub-family Beridinæ.

Abdomen showing seven segments.

Genus EXAIRETA, Schiner (1867).

Antennæ filiform, the flagellum with ten rings generally indistinct near the end; no style, but a few bristles on the point. Eyes not contiguous in either sex. Scutellum with four long spines. Abdomen flat, with seven segments. Third longitudinal vein of the wing forked; an intercalary vein from the discal cell which sometimes does not reach the margin.

KEY TO THE SPECIES.

Thorax black	..	..	..	<i>E. spiniger.</i>
Thorax bright bluish-green.				
Length, 10 mm.	..	..	..	<i>E. alpina.</i>
Length, 4 mm.	..	..	..	<i>E. opposita.</i>
Thorax dark reddish-brown or bronzy.				
Abdomen ferruginous, with a black tip	..	..	..	<i>E. apicalis.</i>
Abdomen purplish, without a black tip	..	..	..	<i>E. straznitskii.</i>

Exaireta spiniger.

Xylophagus spiniger, Weidemann, Ausser-Europ. Zweif. Ins., ii., p. 618 (1830); Hutton, Cat. Dipt. N.Z., p. 35; Hudson, Man. N.Z. Ent., p. 56, pl. vi., fig. 5. *Beris servillei*, Macquart, Dipt. Exot., i., p. 176, pl. 21, fig. 1 (1838).

General colour black, the abdomen with violet reflections. Bases of the femora white, the tarsi yellowish. Wings with the outer half blackish, except a clear spot near the base of the submarginal cell. Length, ♂ 9–10 mm., ♀ 13–15 mm.; of the wing, ♂ 7–8 mm., ♀ 11–12 mm.

Hab. Auckland (Colonel Bolton); Whangarei and Wellington (F. W. H.).

Weidemann gives Australia as the habitat of this species, while Macquart says that the habitat is unknown. In the "Voyage of the 'Novara'" both Sydney and Auckland are given. Schiner made it the type of his genus *Exaireta*.

Exaireta apicalis.

Beris apicalis, White, Voy. "Erebus" and "Terror," pl. 7, fig. 17; Cat. Dipt. in Brit. Mus., p. 126. *Diphysa apicalis*, Walker, Cat. Dipt. Brit. Mus., p. 1151 (1849); Hutton, Cat. Dipt. N.Z., p. 34. *Exaireta analis*, Nowicki, Mem. d. Krakauer k.-k. Akad. d. Wissen., band ii., p. 11 (1875); Hutton, Cat. Dipt. N.Z., p. 36.

Thorax dark reddish-brown, sometimes slightly æneous, and with short golden hairs; the humeral callus tawny or rufous; scutellum tawny, abdomen tawny, the tip purplish-black. Wings ochraceous, with a transverse brown band from the costa to the discal cell; branch of the third longitudinal vein margined with dusky. The intercalary vein from the discal cell does not reach the margin. Length, 7–8 mm.; wing, 6–7 mm.

Hab. Bay of Islands (Sir J. Hooker); Auckland (Captain Broun); Wellington (Hudson); Otago (F. W. H.).

There are five distinct joints in the flagellum of the antennæ, of which the first and fourth are much longer than the others. Probably the fourth is made up of several.

Exaireta straznitskii.

E. straznitskii, Nowicki, Mem. Krakauer Akad. Wissen., ii., p. 14 (1875); Hutton, Cat. Dipt. N.Z., p. 36.

Thorax dark-red, with black lines (not very distinct); the humeral callus tawny. Abdomen purplish, the tip not darker than the rest. Wings ochraceous, with an oblique brown mark from the submarginal cell to the discal; the

intercalary vein from the discal cell very short. Length, 8–11 mm.; wing, 7–8 mm.

Hab. Auckland (Captain Broun).

Exaireta opposita.

Actina opposita, Walker, Cat. Dipt. Brit. Mus., part v., Supp., p. 13 (1854); Hutton, Cat. Dipt. N.Z., p. 35.

Thorax metallic bluish-green (ærugineous). Abdomen tawny, each segment margined behind with fuscous, the tip dark. Intercalary vein short, not reaching half-way to the margin; branch of the third longitudinal slightly sinuated. Length, 7 mm.; wing, 7 mm.

Hab. Auckland (Colonel Bolton and Captain Broun); Otago (F. W. H.).

Exaireta alpina, sp. nov.

Vertex black, the front silvery; antennæ piceous, the base of the flagellum pale; palpi and proboscis pale-yellow, except the last joint of the palpi, which is dark-brown. Thorax metallic greenish-blue, with a little golden down; base of the scutellum the same, its apex and spines brown. Abdomen tawny, the posterior margin of each segment with green metallic reflections. Sixth segment with a longitudinal dark band with green reflections; seventh and eighth segments almost entirely dark. Legs tawny, the middle and hind tarsi paler, the fore tarsi fuscous. Wings pale-brownish, darker near the fore border; no dark band; costa brown, veins tawny; intercalary vein reaching the margin. Halteres pale-tawny. Length, 10 mm.; wing, 9 mm.

Hab. Mount Arthur, 3,600 ft. (Hudson).

The flagellum apparently consists of eight distinct joints, but the last is longer than the others, and is probably formed by three closely united joints. The abdomen in the female is slightly oval and rather broader than the thorax. The male is unknown.

Genus BERIS, Linnæus (1809).

Third joint of the antennæ long-fusiform, with eight rings; the palpi long. Eyes contiguous in the male. Scutellum with spines. Abdomen rather broad. Wing with four posterior cells, there being no intercalary vein from the discal cell.

In the New Zealand species the third joint of the antennæ is linear, and the eyes are not always contiguous in the male.

KEY TO THE SPECIES.

Thorax dull blackish-brown .. .. .	..	..	..	..	<i>B. violacea.</i>
Thorax shining greenish-blue .. .. .	..	..	..	..	<i>B. micans.</i>
Thorax dull-green or bronzy-green .. .. .	..	..	..	..	<i>B. substituta.</i>
Thorax shining bronzy .. .. .	..	..	..	..	<i>B. cuprea.</i>

Beris violacea, sp. nov.

Head black, with a patch of silvery tomentum in front. First and second joints of the antennæ brown, the flagellum fuscous, apparently 6- or 7-jointed. Thorax dull blackish-brown, finely punctured all over; the scutellum slightly bronzy; humeral callus tawny (occasionally dark-brown). Abdomen dark-blue, shining. Legs brown, with variable pale markings; generally the bases of the femora and the first joint of the hind tarsi are pale. Wings smoky, the stigma and veins black; a darkish cloud below the stigma. Length, 4 mm.; wings, 4 mm.

Hab. Christchurch and Otago (F. W. H.).

The eyes are not contiguous in the male. In both sexes the abdomen is oval. The second posterior cell is sessile, with a broad base.

Beris micans, sp. nov.

Head black (the antennæ are broken off). Thorax brilliant greenish-blue, including the scutellum; the spines tawny. Abdomen black. Legs pale-tawny, the last joints of the tarsi fuscous. Wings tinged with pale-brown, the stigma rather darker. Length, 5 mm.; wing, 4 mm.

Hab. Auckland (Captain Broun).

This species is so distinct that I have given it a name, although I have seen only a single specimen without antennæ. The second posterior cell is sessile.

Beris substituta.

Beris substituta, Walker, Cat. Dipt. in Brit. Mus., part v., Supp., p. 12 (1854). *Actina substituta*, Hutton, Cat. Dipt N.Z., p. 34.

Thorax dull-green or bronzy. Abdomen purplish-cupreous. Legs tawny, with brown bands on the femora and tibiæ. Wings greyish, the stigma and veins black. Length, 4 mm.

Hab. Auckland (Colonel Bolton).

This species is unknown to me.

Beris cuprea, sp. nov.

Head black, first and second joints of the antennæ dark-red, the flagellum dark reddish-brown. Thorax and scutellum brilliant bronze, the spines tawny. Abdomen blackish-brown in the female, purplish-black in the male. Legs pale-tawny, the last joint of the tarsi black. Wings tinged with tawny, the stigma rather darker. Length, 4 mm.; wing, 4 mm.

Hab. Auckland and Maketu (Captain Broun).

In the male the eyes are contiguous, the abdomen is narrow and linear, and the second posterior cell is petiolate.

In the female the flagellum of the antennæ is formed by six quite distinct short joints; the last one, however, is longer, and may consist of two fused together. The second posterior cell is shortly petiolate.

Sub-family **Odontomyinæ.**

Abdomen broad, apparently with only five segments.

Genus ODONTOMYIA, Latreille (1809).

First joint of the antennæ longer than the second, but not elongated; the third fusiform, with five rings and a short style. Eyes contiguous in the male. Scutellum with two spines. Veins of the wing faint towards the posterior margin; generally with four posterior cells (three in the New Zealand species).

KEY TO THE SPECIES.

Abdomen bordered with green.

Spines of the scutellum well developed.

Antennæ black.

Base of scutellum black.

Length, 10-12 mm. *O. atrovirens.*

Length, 8-10 mm.

Hairs on sides of thorax grey, or

none *O. chloris.*

Hairs on sides of thorax tawny *O. chathamensis.*

Length 6-8 mm. *O. collina.*

Scutellum green or tawny *O. fulviceps.*

Antennæ yellow *O. australiensis.*

Spines of scutellum obsolete; length, 7 mm. .. *O. dorsalis.*

Abdomen black *O. angusta.*

The females can be distinguished by the outline of the black on the vertex, as follows:—

Black on the vertex, convex in front.

Length, 10-12 mm. *O. atrovirens.*

Length, 6-8 mm. *O. collina.*

Black on the vertex, notched in front *O. chloris.*

Black on the vertex, concave in front.

Length, 9-11 mm. *O. chathamensis.*

Length, 6-7 mm. *O. dorsalis.*

Black on the vertex, confined to the ocellar triangle .. *O. fulviceps.*

Odontomyia atrovirens.

Odontomyia atrovirens, Bigot, Ann. de la Soc. Ent. de France, 5th série, tome ix., page 214 (1879).

♂. "Antennis basi nigris (segmentum tertium?); facie testaceo fulvo, utrinque albedo villosâ; haustello nigro; thorace nigro cinereo et parçè villosa, pleuris testaceis, albedo villosis; scutello prasino, basi nigro, spinis testaceis; abdomine prasino, supernè nigro nitido late vittato, vittâ parum crenatâ; halteribus prasinis; pedibus testaceis, femoribus anterioribus pallide castaneis, retrorsum, apice fuscis, tibiis basi tarsique parum infuscatis; alis hyalinis, stigmatè testaceo" (Bigot).

Hab. Auckland (Captain Broun); Christchurch and Otago (F. W. H.).

There is no difference in size between the sexes. Length, 10–12 mm.; wing, 8–10 mm. The female wants the grey hairs on the sides of the thorax, and the green margin of the abdomen is not so broad. The black of the vertex ends anteriorly in a line which is convex, or sometimes slightly emarginate in the middle.

Odontomyia chloris.

Stratiomys chloris, Walker, Cat. Dipt. in Brit. Mus., part v., Supp., p. 57 (1854). *O. chloris*, Hutton, Cat. Dipt. N.Z., p. 37. *O. hypochlora*, Nowicki, Mem. Krakauer Akad. Wissen., ii., p. 15 (1875); Hutton, Cat. Dipt. N.Z., p. 38.

In the female the black of the vertex has a deep central square-ended notch, which extends further back than the termination of the black at the eyes. The scutellum is green with a black base. The male has grey hairs on each side of the thorax. Length, 8–10 mm.; wing, 7–8 mm.

Hab. Auckland (Colonel Bolton); Christchurch (F. W. H.).

Odontomyia collina, sp. nov.

Antennæ piceous; spines of scutellum well developed, tawny. Halteres pale-green. Wings hyaline, the stigma and veins tawny; three posterior cells. Abdomen black above, margined with green or tawny, which is broad in the male, narrow in the female.

Male.—Thorax and scutellum black. Legs tawny, the femora fuscous. Length, 6 mm.

Female.—Face yellow, the black of the vertex convex in front. Thorax piceous, with yellow hairs. Scutellum green, with a black spot at the base in the centre and one at each side. Legs tawny. Length, 8 mm.

Hab. Lindis Pass, Otago (F. W. H.).

Odontomyia chathamensis, sp. nov.

Head pale-tawny (green?) on the face, the vertex black in the female. Antennæ and proboscis black. Thorax black, with scattered fulvous hairs in both sexes, while in the male those on the sides are abundant; scutellum black margined with tawny; the spines tawny, small but distinct. Abdomen above black margined on each side with pale-tawny, which is broader in the male than in the female; below very pale-tawny. Halteres nearly white. Legs tawny, the outer surfaces of the tibiæ sometimes brown. Wings hyaline, the stigma and the outer portion of the costal cell tawny; three posterior cells. Length, 9–11 mm.; wing, 7–10 mm.

Hab. Chatham Islands (Fougère).

This species has its nearest ally in *O. dorsalis*. In the female the black of the vertex ends anteriorly in a line which is concave to the front and passes down in front of the eyes to the level of the bases of the antennæ.

My specimens have been in alcohol, and therefore the colours have been changed.

Odontomyia fulviceps.

Stratiomys fulviceps, Walker, Cat. Dipt. in Brit. Mus., part v., Supp., p. 56 (1854); Hutton, Cat. Dipt. N.Z., p. 37.

In this species the thorax has more golden down than in any of the others, and in the male there are no long hairs on the sides. The scutellum is green, or tawny when faded. In the female the vertex is green, except the ocellar triangle, which is black. Length, 8–10 mm.; wing, 6–7 mm.

Hab. Wellington (Hudson); Christchurch (F. W. H.).

Specimens taken Home by the "Erebus" and "Terror" were probably collected at the Bay of Islands.

Odontomyia australiensis.

Odontomyia australiensis, Schiner, Reise der "Novara," Dipt., p. 59 (1868); Hutton, Cat. Dipt. N.Z., p. 38.

Antennæ yellow; thorax copper-red. Length, 9 mm.

I do not know this species.

Odontomyia dorsalis.

Stratiomys dorsalis, Walker, Cat. Dipt. in Brit. Mus., p. 536 (1849); White, Voy. "Erebus" and "Terror," Insects, pl. 7, fig. 18; Hutton, Cat. Dipt. N.Z., p. 37.

A small species, distinguished by the absence of spines on the scutellum. The black on the vertex of the female resembles that of *O. chathamensis*. The base of the scutellum is black. Length, $6\frac{1}{2}$ –7 mm.; wing, 6–7 mm.

Hab. Auckland (Colonel Bolton); Napier (F. W. H.).

Odontomyia angusta.

Stratiomys angusta, Walker, Cat. Dipt. in Brit. Mus., part v., Supp., p. 57 (1854); Hutton, Cat. Dipt. N.Z., p. 38.

Abdomen black. Vertex and disc of the face black. In a female specimen I have of this species, from Christchurch, there is a large round black spot between the antennæ and the mouth, and the black on the vertex is concave in front. The antennæ are black and the halteres bluish-green. It differs from Walker's description in having the legs tawny with brown markings, and in the veins of the wing being pale-tawny. It is also only 6 mm. in length, and the wing 5 mm., while the type is $7\frac{1}{2}$ mm. in length.

Hab. Auckland (Colonel Bolton); Christchurch (F. W. H.).
Rare.

Genus CLITELLARIA, Meigen (1822).

Antennæ long, the first and second joints equal; the flagellum slightly obelavate, indistinctly 7-ringed, with a style at the end. Eyes contiguous in the male. Scutellum with two spines. Longitudinal veins of the wing strong up to the margin.

Clitellaria aberrans.

Clitellaria aberrans, Schiner, Reise der "Novara," Dipt., p. 55 (1868); Hutton, Cat. Dipt. N.Z., p. 39.

Black with a white oblique band above the border of the mouth. No style. Front tarsi yellow at the base, the last pair yellow. Length, 5 mm.

Hab. Auckland ("Novara" expedition).

I do not know this species.

Genus CYCLOGASTER, Macquart (1834).

Flagellum of the antennæ long, cylindrical. Scutellum without spines. Abdomen suborbicular. Longitudinal veins of the wing strong up to the margin.

Cyclogaster peregrinus, sp. nov.

Bluish-black, finely punctate over the whole upper surface; the thorax with short brown hairs. First and second joints of the antennæ and the palpi testaceous, or red. Legs testaceous, the middle and hind femora brownish; the proximal half of the fore tibiæ black in front. Wings rather smoky, dark at the tip; the stigma fuscous. Halteres dark-brown. Length, $5\frac{1}{2}$ mm.; wing, 5 mm.

Hab. Whangarei (F. W. H.); Auckland (Captain Broun).

The first joint of the antennæ is short and cyathiform, the second is oval and about twice the length of the first; the flagellum is very long and linear, indistinctly ringed, without a style; the third longitudinal vein is strongly arcuated, the anterior branch leaving it a little outside the chief cross-vein; root of the fourth absent; fifth longitudinal strong; the sixth weak; seventh absent. Discal cell hexagonal; two intercalary veins, the second of which does not reach the margin; anterior and posterior basal cells not completely separated. Abdomen subcircular.

Family TABANIDÆ.

"Three basal cells much prolonged; third longitudinal vein furcate; two intercalary veins always present; marginal vein running round the whole border of the wing; tegulæ rather large. Third joint of the antennæ annulate, rarely

divided into distinct joints, always without style or bristle. Empodium much developed and pulvilliform" (Loew).

KEY TO THE GENERA.

- Hind tibiæ without spurs; no ocelli.
 Third joint of the antennæ with a basal tooth .. *Tabanus*.
 Third joint of the antennæ without a basal tooth .. *Sylvius*.
 Hind tibiæ with spurs; ocelli present.
 Proboscis much longer than the palpi *Pangonia*.
 Proboscis hardly longer than the palpi *Apatolestes*.

GENUS *TABANUS*, L.

Proboscis inclined backwards in the male, perpendicular in the female. Third joint of the antennæ elongated, divided into five divisions, of which the four last are small, and the first division has a tooth at its base. Eyes in the male contiguous, slightly separated in the female. No ocelli. Middle tibiæ spurred, but not the hinder ones. The eyes have long hairs in the male, and generally short hairs in the female. The second longitudinal vein is simple.

KEY TO THE SPECIES.

- Abdomen reddish.
 Smaller; length, 9-10 mm. *T. transversus*.
 Larger; length, 12-14 mm.
 Abdomen with a dark dorsal streak.
 Thorax without bands *T. oplus*.
 Thorax with three pale bands *T. sordidus*.
 Abdomen without a dark dorsal streak *T. impar*.
 Abdomen blackish, with reddish spots on the sides.
 Spots on the first three segments *T. impar*.
 Spots on the first and second segments *T. bratranchii*.
 Spots on the second segment only *T. gravis*.
 Abdomen pitch-brown, without tawny spots.
 Thorax with pale bands *T. sarpa*.
 Thorax without pale bands *T. viridis*.

***Tabanus impar*.**

Tabanus impar, Walker, Cat. Dipt. in Brit. Mus., part v., Supp., p. 258 (1854); Hutton, Cat. Dipt. N.Z., p. 19.

Palpi pale-tawny, the proboscis dark-brown; antennæ fuscous at the tip. Thorax dark-brown, with short pale hairs. Wings brownish, darker in the costal, marginal, and interior basal cells. The sexes differ.

Male.—First and second joints of the antennæ dark reddish-brown. Abdomen blackish-brown, with a triangular white spot in the centre of each segment; margins of the segments and a large spot on each side of the first three segments dull-red. Legs brown, the fore and middle tibiæ tawny in the basal half, but the colours are variable.

Female.—Head and first two joints of the antennæ pale-tawny. Abdomen dull-red, fuscous at the tip. Legs tawny, the tarsi fuscous.

Length, ♂ 12–14 mm., ♀ 12 mm.; wings, ♂ 11–13 mm., ♀ 12 mm.

Hab. Auckland (Colonel Bolton and Captain Broun); Great Barrier Island (Suter); Taranaki (Clark).

Tabanus oplus.

T. oplus, White, MSS.; Walker, Cat. Dipt. in Brit. Mus., part v., Supp., p. 255 (1854); Hutton, Cat. Dipt. N.Z., p. 20; Butler, Cistula Entomologica, vol. i., p. 356 (1876).

Head brown; antennæ with the first, second, and base of the third joints brown, the tip fuscous; palpi yellow, proboscis brown. Thorax black, with short pale hairs. Abdomen dull-red, with a dark ill-defined band down the centre, which is interrupted at the posterior margin of each segment; the last four segments darker than the first three. Wings as in *T. impar*, the veins brown.

Male.—Legs dull-red, the femora blackish near their bases. The abdominal dark band is broader than in the female.

Female.—Legs dull-red, the last joints of the tarsi fuscous. Thorax with reddish marks on the sides and above, behind the middle; the humeral callus is also reddish.

Length, ♂ 12 mm., ♀ 13 mm.; wing, ♂ 12 mm., ♀ 13 mm.

Hab. Auckland (Colonel Bolton and Captain Broun).

Tabanus sordidus.

T. sordidus, Walker, Cat. Dipt. in Brit. Mus., Supp., p. 256 (1854); Hutton, Cat. Dipt. N.Z., p. 20.

Black, the thorax with three hoary stripes. Abdomen tawny, with an interrupted black stripe, which is dilated at the base and at the tip. Posterior tibiæ tawny. Length, $14\frac{1}{2}$ mm.

Hab. Auckland (Colonel Bolton).

I have not seen this species.

Tabanus bratranchii.

T. bratranchii, Nowicki, Mem. Krakauer Akad. Wissen., band 2, ged. Aufsatzes, p. 19 (1875); Hutton, Cat. Dipt. N.Z., p. 20.

Head dark-grey in front, nearly white below; antennæ black, the first two joints occasionally brown; palpi tawny, the proboscis brown. Thorax dark-brown, with four indistinct greyish bands, sometimes reddish on the sides. Abdomen dark-brown, with a triangular white spot on the centre of each segment; posterior margins of the segments and a large spot on each side of the first and second segments tawny. Wings nearly hyaline, the outer portion of the marginal cell darker; veins piceous.

Male.—Legs fuscous, the fore and middle tibiæ tawny.

Female.—Legs fuscous, all the tibiæ tawny, and sometimes the femora (Auckland specimens) also. The white triangles on the abdomen are larger than in the male.

Length, 13 mm. ; wing, 12–13 mm.

Hab. Auckland (Captain Broun) ; Taranaki (Clark).

Tabanus gravis, sp. nov.

Female.—Head dark-brown, paler on the face ; antennæ black, the basal tooth large. Palpi dark-grey ; proboscis dark-brown, the lancets reddish. Facets of the eyes very small. Thorax black, with two indistinct greyish bands ; the sides greyish. Abdomen black, with small pale triangles on the second to the fifth segments ; a small reddish spot on each side of the second segment ; the posterior lateral corners of the second to the sixth segments tawny and with white hairs ; the lower surface brown. Legs brown, the femora and tarsi blackish. Wings nearly colourless, the stigma brown, the veins dark-brown. Length, 16 mm. ; wing, 15 mm.

Hab. Auckland (Captain Broun).

Tabanus sarpa.

T. sarpa, White, MSS. ; Walker, Cat. Dipt. in Brit. Mus., part v., p. 255 (1854). *T. truncatus*, Walker, *l.c.*, p. 255 ; Hutton, Cat. Dipt. N.Z., p. 20.

Vertex, in the female, brown ; face and a band above the antennæ yellowish-white. First and second joints of the antennæ dark-brown, the third black. Proboscis dark-brown. Thorax reddish-brown, with four cinereous longitudinal bands. Abdomen pitch-brown, segments 1 to 5 with a pale triangular mark in the centre (in the female). Legs fulvous, the anterior tarsi fuscous ; the femora more or less dusted with grey. Wings nearly colourless, the veins tawny. Length, 11–12 mm. ; wings, 12 mm.

Hab. Auckland (Colonel Bolton and Captain Broun).

Tabanus viridis.

Comptosia virida, Hudson, Man. N.Z. Ent., p. 55, pl. vi., fig. 3.

Vertex and face greyish-white. First and second joints of the antennæ brownish-fulvous, the third joint piceous. Eyes green when alive, piceous when dry, hairless. Thorax pitch-brown, without any bands ; a few scattered black hairs in the centre and grey hairs on the sides. Abdomen pitch-brown, with grey dust ; the margins of the segments grey. Legs testaceous, the tarsi fuscous ; the femora with grey dust. Wings slightly greyish, the veins tawny. Length, 14–15 mm. ; wing, 12 mm.

In the female the femora are rather darker than in the male, and the grey margin of the abdominal segments is produced forwards into a central triangular mark.

Hab. Wellington (Hudson); Ashburton (W. W. Smith).

This is the only species of *Tabanus* that I have seen from the South Island, and here it is very rare.

Tabanus transversus.

T. transversus, Walker, Cat. Dipt. in Brit. Mus., part v., Supp., p. 256 (1854); Hutton, Cat. Dipt. N.Z., p. 21.

Reddish-brown, the legs and under-surface paler. Wings colourless, the stigma pale-brown; the veins brown. Antennæ with the first and second joint yellow, the third black. Palpi pale-tawny, the proboscis brown.

The male differs from the female in having four dusky stripes on the thorax, and the abdomen is brown, with a row of triangular tawny spots down the centre. The wings also are brownish, and have darker cloudy spots at the fork of the third longitudinal, on the chief and posterior cross-veins, and on the outer margin of the discal cell. Length, ♂ 9 mm., ♀ 10 mm.; wing, ♂ 10 mm., ♀ 11 mm.

Hab. Auckland (Colonel Bolton and Captain Broun).

The male of this species is remarkable for the very large facets of the eyes, a fact probably of sufficient importance to place it in a different genus from the rest. They are without hairs in both sexes.

Genus *SILVIUS*, Meigen (1820).

First and second joints of the antennæ short, the third not toothed, with five rings. Second joint of the palpi cylindrical in the male. Ocelli generally present. The face without callosities. Hind tibiæ without spurs. Neuration of the wing as in *Pangonia*; the first posterior cell open.

Sylvius maorium.

Mesomyia maorium, Bigot, Mem. Soc. Zool. de France, vol. v., p. 621 (1892).

“*Male*.—Proboscis, palpi, and antennæ black; the first and second joints of the last grey; face blackish, with some grey hairs; front grey. Thorax and scutellum opaque-black, abdomen black, the segments bordered with obscure grey. Calyptræ and halteres pale-yellow. Legs pale-yellow, the femora, distal portion of the tibiæ, and all the tarsi black. Wings nearly hyaline, the stigma brown. Length, 8½ mm.” (Bigot).

A specimen from Wellington, which I believe to be the female of this species, has the first and second joints of the

antennæ black, and the face greyish-white, except the naked portion between the eyes. The thorax and scutellum are covered with grey dust, the former with three black bands. The grey posterior margins of the abdominal segments are very apparent, and in the middle they run forwards in a point, forming a triangle, which is largest on the second segment. In other respects it agrees with the description of the type. Length, 9 mm.; wing, 9 mm.

Hab. Wellington (Hudson).

The antennæ are inserted rather below the middle line of the head. The first joint of the antennæ is thick, slightly oval, and hairy. The ocelli are absent. The outline of the abdomen is slightly oval.

Genus PANGONIA, Latreille (1806).

Proboscis long, extending much further than the palpi. Third joint of the antennæ with seven or eight divisions, the first joint short. Eyes hairy or naked. Ocelli present, sometimes indistinct. Posterior tibiæ with well-developed spurs. Wings with the fourth posterior cell open, the first either open or closed. Eyes contiguous in the male, separated in the female.

KEY TO THE SPECIES.

Abdomen bluish-black	..	..	..	..	<i>P. adrel.</i>
Abdomen brown, tawny at the sides.					
Antennæ tawny, blackish at the tip			..	..	<i>P. lerda.</i>
Antennæ blackish.					
Sides of the thorax with tawny hairs	..	..	..	..	<i>P. hirticeps.</i>
Sides of the thorax with white hairs	..	..	..	..	<i>P. ricardo.</i>
Abdomen altogether brown	..	..	..	..	<i>P. montana.</i>

Sub-genus EREPHROSIS, Rondani.

First posterior cells closed; eyes hairy.

Pangonia adrel.

P. adrel, Walker, *Insecta Saundersiana*, Dipt., i., p. 16 (1850); Hutton, *Cat. Dipt. N.Z.*, p. 22. *Erephrosis adrel*, Ricardo, *Ann. Mag. Nat. Hist.*, ser. 7, vol. 5, p. 115 (1900).

Thorax black. Abdomen bluish-black, shining. The posterior angles of the thorax and the abdomen with tufts of pale brownish-yellow hairs. Legs black. Length, 13 mm.; wing, 15 mm.

Hab. Auckland (Captain Broun); Taranaki (Clark).

Of our four female specimens, the first posterior cell is closed in one and open in three. I have not seen the male; Miss Ricardo says that in it the sides of the two first segments of the abdomen are fulvous.

Sub-genus DIATOMINEURA, Rondani.

First posterior cell open; eyes hairy.

Pangonia lerda.

P. lerda, Walker, Insecta Saundersiana, Dipt., i., p. 16 (1850); Hutton, Cat. Dipt. N.Z., p. 21; White (A. G. Butler), Cistula Entomologica, vol. i., p. 355 (1876). *Diatomineura lerda*, Ricardo, Ann. Mag. Nat. Hist., ser. 7, vol. 5, p. 119 (1900).

"Palpi and antennæ yellowish-brown, the latter blackish at the end. Face and front with greyish down; thorax above black; a line of deep-brown hairs on each side; a tuft of yellowish hairs on each side, near the base of the wings; scutellum black; abdomen above ferruginous-brown, black in the middle, the terminal segments with yellowish hairs on the margins; under-side of the thorax with longish yellow hairs in front and on the sides, in the middle greyish; abdomen beneath ferruginous, almost without hairs; legs ferruginous, without hairs; no tooth on the third joint of the antennæ" (A. White).

No length is given, but according to Mr. Walker it is $14\frac{1}{2}$ mm.

Hab. New Zealand.

I have seen no specimen which I can confidently refer to *P. lerda*, therefore I have reproduced White's original description, which was published by Mr. Butler.

Pangonia hirticeps.

P. hirticeps, Nowicki, Mem. Krakauer Akad. Wissen., 1875, p. 17; Hutton, Cat. Dipt. N.Z., p. 22.

The head is white above, with pale-tawny or yellowish hairs below, the ocellar region dark-ferruginous. Palpi and antennæ nearly black. Thorax blackish-brown, with tawny hairs; a band of black hairs on each side, below which and on the posterior angles are long pale-yellowish hairs. The abdomen is blackish-brown, the first and second segments broadly margined with dull-red, and each segment has a central spot of pale-yellow hairs; the hairs on the sides of the abdomen are black and pale-yellow in alternate tufts. Legs brown, the fore and middle tibiæ reddish; the last joints of the tarsi fuscous. Length, 14 mm.; wing, 16 mm.

Hab. Auckland (Captain Broun).

Pangonia ricardoi, sp. nov.

Comptosia bicolor, Hudson, Man. N.Z. Ent., p. 54, pl. iv., fig. 2, not of Macquart.

Male.—Face pale-yellowish; first joint of the antennæ grey with black hairs, the rest pitch-brown; palpi brown;

proboscis pitch-brown; the hairs on the lower surface of the head pale-yellow. Thorax brown, with grey lines in the sutures; a band of black hairs on each side, below which, and on the lower surface, the hairs are white; a tuft of long white hairs on the posterior angles of the thorax, behind the wings. Abdomen black or blackish-brown; the two first segments largely and the third slightly margined with tawny (sometimes obscure); the posterior margins of the segments tawny and with tawny hairs, a spot of white hairs in the centre of the posterior margin of the first five segments; hairs on the sides arranged in alternate tufts of black and white. Legs blackish, all the tibiæ ferruginous. Wings smoky, darker on the anterior portion; the veins fuscous.

The *female* has the vertex dark-grey, and differs from the male in having white hairs below on the head; the thorax is less hairy and has no tufts; the abdomen is paler and less hairy.

Length, ♂ 12–13 mm., ♀ 12 mm.; wing, ♂ 12–14 mm., ♀ 12–13 mm.

Hab. Christchurch (F. W. H.); Ashburton (Smith); Wellington (Hudson).

This species differs from the last in being smaller, in the white hairs on the thorax and abdomen, and in the thorax being paler. In all the specimens I have seen the first posterior cell is open. The males are not uncommon, but the female is rarely seen.

Sub-genus *CORIZONEURA*, Roth.

First posterior cell open; the eyes naked.

***Pangonia montana*, sp. nov.**

Female.—Upper surface uniform blackish-brown, with thinly scattered short white hairs on the dorsum of the thorax, more abundant and longer on its sides. Head tawny, the vertex darker than the face; antennæ brown at the base, fuscous at the tip; palpi pale-tawny; proboscis dark-brown. Lower surface brown. Legs tawny, the tarsi brown. Wings slightly smoky, the veins brown; the first posterior cell open. Length, 9 mm.; wing, $8\frac{1}{2}$ mm.

Hab. Mount Arthur, Nelson (Captain Broun).

Smaller than the other New Zealand species, and without any tufts of hair on the thorax. The eyes are naked. I have not seen the male.

Genus *APATOLESTES*, Williston (1885).

Third joint of the antennæ with seven or eight divisions, and without a tooth. Ocelli present. Proboscis short, scarcely extending beyond the palpi. Hind tibiæ with well-developed spurs. Anal cell closed, the anal vein not curved.

Apatolestes lutulentus, sp. nov.

Female.—Upper surface blackish-brown, with short scattered white hairs on the thorax and abdomen; a thicker layer of these hairs on the posterior margins of the abdominal segments. On the lower surface these white hairs are more abundant, especially under the head. First and second joints of the antennæ tawny; palpi yellow; eyes with short hairs. Tibiæ paler brown than the rest of the legs. Wings slightly tinged with brown, the stigma indistinct. Length, 15 mm.; wing, 11½ mm.; breadth of the abdomen, 6 mm.

Hab. Christchurch(?) (Clark).

The sides of the abdomen are straight, and its length is about one and two-thirds its breadth. The hind tibiæ have well-developed spurs. It is possible that this insect may have come from Taranaki, as I have never seen it at Christchurch.

Family ASILIDÆ.

“Three basal cells much prolonged. Third longitudinal furcate, the two intercalary veins always present. Third joint of the antennæ simple. Under-lip forming a horny sheath. Empodium a horny bristle” (Loew).

KEY TO THE GENERA.

Style short; third basal or anal cell open	..	..	<i>Saropogon</i> .
Style long; third basal or anal cell closed.			
Lower face not projecting	..	..	<i>Senoprosopis</i> .
Lower face projecting.			
Tibiæ red	..	..	<i>Itamus</i> .
Tibiæ brown	..	..	<i>Asilus</i> .

Sub-family **Dasypogoninæ**.

Second longitudinal vein running into the border of the wing.

Genus SAROPOGON, Loew (1847).

The first and second joints of the antennæ short, nearly equal; the third elongated, compressed, fusiform, the style short and conical, often of two distinct joints. Anterior tibiæ with a curved spine at the tip. Subcostal and four posterior cells open; two submarginal cells.

KEY TO THE SPECIES.

Bristles of the epistome black.			
Legs black.			
Tip of the wing clouded	..	..	<i>S. viduus</i> .
Tip of the wing clear	..	..	<i>S. clarkii</i> .
Legs ferruginous.			
A dark spot on costa of the wing	..	..	<i>S. extenuatus</i> .
No spot on costa of the wing	..	..	<i>S. chathamensis</i> .

Bristles of the epistome yellowish-white.

Legs brown.

Abdomen reddish-brown below *S. discus.*

Abdomen black below.

Thorax black *S. proximus.*

Thorax golden *S. fugiens.*

Legs ferruginous.

Tip of the wing clouded *S. antipodus.*

Tip of the wing clear *S. hudsoni.*

Saropogon viduus.

Dasypogon viduus, Walker, Cat. Dipt. in Brit. Mus., p. 354 (1849). *Saropogon viduus*, Hutton, Cat. Dipt. N.Z., p. 25.

Black. Face yellowish-white; the bristles of the epistome black, tipped with fulvous. Sides of the thorax silvery. Halteres pale-brown. Wings with a greyish tinge, darker at the tips; the costal cells, as well as the base of the marginal cell, pale-brown. Length, ♀ 14 mm.; wing, 13 mm.

Hab. North Island (Colenso); Great Barrier Island (Suter).

Saropogon clarkii, sp. nov.

Black. Face and sides of the thorax silvery. Bristles of the epistome black. Halteres pale-brown. Wings hyaline, the first costal and interior basal cells brown; veins pitch-brown. Length, ♂ 12 mm., ♀ 13 mm.; wing, ♂ 10 mm., ♀ 12 mm.

Hab. Taranaki (Clark).

Saropogon discus.

Dasypogon discus, Walker, Cat. Dipt. in Brit. Mus., p. 358 (1849). *Saropogon discus*, Hutton, Cat. Dipt. N.Z., p. 26.

Purplish-black above and reddish-brown below. Thorax above with two stripes of yellowish tomentum. Bristles of the epistome yellowish-white. Halteres yellow. Legs brown, the outer joints of the tarsi blackish in the female; in the male the whole of the legs are blackish above. Wings slightly tinged with brownish. Length, ♂ 10 mm., ♀ 11 mm.; wing, ♂ 9 mm., ♀ 10 mm.

Hab. Taranaki (Clark).

Saropogon proximus, sp. nov.

Female.—Face black; the bristles of the epistome yellowish-white. Thorax black, with black hairs above and yellowish hairs below, but no silvery tomentum. Abdomen purplish-black, both above and below. Halteres pitch-brown. Legs reddish-brown, the femora blackish above; the tarsi blackish. Wings slightly tinged with brown. Length, 12 mm.; wing, 11 mm.

Hab. Mount Peel, Nelson (Hudson).

I have not seen the male.

Saropogon fugiens, sp. nov.

Face golden; the bristles of the epistome white. Thorax blackish, with golden hairs above on the shoulders, on two longitudinal bands, on the sides, and on the scutellum. Abdomen purplish-brown, both above and below. Halteres brown. Wings slightly tinged with brown, the veins pitch-brown. Coxæ with silvery tomentum; femora and tibiæ reddish-brown, the femora and hind tibiæ darker above. Length, ♂ 10 mm., ♀ 12 mm.; wing, ♂ 9 mm., ♀ 11 mm.

Hab. Wellington (Hudson).

Saropogon antipodus.

S. antipodus, Schiner, Reise der "Novara," Dipt., p. 166 (1868); Hutton, Cat. Dipt. N.Z., p. 27.

Brownish-red, the thorax with golden tomentum. Bristles of the epistome yellowish-white. Legs dull-red; the tarsi, except the first joint, blackish-brown. In the male the first joint of the hind tarsi is blackish-brown, and the wings are nearly hyaline, but clouded at the tip, as in the female. Length, ♂ 14 mm., ♀ 15 mm.; wing, ♂ 10 mm., ♀ 12 mm.

Hab. Auckland ("Novara" expedition); Wellington (Hudson); Taranaki (Clark).

Saropogon hudsoni, sp. nov.

Brownish-black, with golden tomentum on the thorax. Bristles of the epistome pale-yellowish. Halteres brown. Wings slightly tinged with brown, no darker cloud at the tip; the veins piceous, except at the base, where they are ferruginous. Legs ferruginous, the four last joints of the tarsi blackish. Length, ♂ 12 mm., ♀ 14 mm.; wing, ♂ 10 mm., ♀ 11 mm.

Hab. Mount Peel, Nelson (Hudson).

Saropogon chathamensis, sp. nov.

Female.—Purplish-brown, the thorax probably with golden tomentum. Bristles of the epistome black. Halteres brown. Wings tinged with brownish; the veins pitch-brown, except near the base, where they are ferruginous. Coxæ purplish-black; the rest of the legs, except the two last joints of the tarsi, ferruginous. Length, 10 mm.; wing, 10 mm.

Hab. Chatham Islands (Fougère).

I have not seen the male. The specimens have been in spirit.

Saropogon extenuatus, sp. nov.

Reddish-brown, the face and a spot on the sides of the thorax golden. Thorax and scutellum with scattered golden hairs. Bristles of the epistome black. Antennæ and proboscis dark-brown. Wings strongly tinted with yellowish-brown, the tips fuscous; a dark spot on the costa, just inside the tip of the auxiliary vein, and extending backwards to the second longitudinal. Coxæ dark-brown, those of the fore and middle legs with silvery hairs. The rest of the legs, except the last joint of the tarsi, ferruginous. Length, $8\frac{1}{2}$ mm.; wing, 8 mm.

Hab. Wellington (Hudson).

Sub-family **Asilinæ**.

Second longitudinal vein running into the first. Antennæ with a distinct terminal bristle.*

Genus **ASILUS**, Linnæus.

Two submarginal cells; the fourth posterior cell closed. Third joint of the antennæ long, compressed, with a rather long style. Face protruding below. Genitalia of the male slightly swollen. Tibiæ without a red band.

Asilus smithii, sp. nov.

Dark-brown, the abdomen with grey tomentum. Bristles of the epistome white, with a few black ones above. Face yellowish-white. Antennæ black, the second joint shorter than the first. Lower head and thorax with long white hairs. Thorax nearly black, with black hairs above and a little silvery tomentum on the sides. Halteres yellow. Wings nearly colourless, the veins black. Legs black, with grey hairs and black bristles. Length, ♂ 11 mm., ♀ 12 mm.; wing, ♂ 10 mm., ♀ 11 mm. In the male the first three segments of the abdomen have a series of long white hairs on their posterior margins.

Hab. Ashburton (W. W. Smith).

Genus **ITAMUS**, Loew (1849).

Wings and antennæ as in *Asilus*. Genitalia of the male much swollen. The tibiæ with a red band.

* I omit *Promachus floccosus*, Kirby (Trans. Ent. Soc. London, 1884), from our list, as I think there must be a mistake in the locality. There is no such place as Opabo in New Zealand, and so conspicuous an insect could hardly have eluded all our collectors. Perhaps it was collected at Opobo, in West Africa. *Promachus* has three submarginal cells.

Itamus varius.

Asilus varius, Walker, Cat. Dipt. in Brit. Mus., p. 457 (1849);
Hutton, Cat. Dipt. N.Z., p. 28.

Lower bristles of the epistome white, some of the upper ones black. Abdomen brown, the hind borders of the segments pale-yellow. Length, 18 mm.; wing, 12–13 mm.

Hab. Throughout New Zealand and the Great Barrier Island. Common.

Itamus bulbus.

Asilus bulbus, Walker, Cat. Dipt. in Brit. Mus., p. 465 (1849);
Hutton, Cat. Dipt. N.Z., p. 29. *Itamus melanopogon*,
Schiner, Reise der "Novara," Dipt., p. 190 (1868); Hutton,
l.c., p. 28. *Itamus inquisitor*, Nowicki, Mem. Krakauer
Akad. Wissen., 2, p. 21 (1875); Hutton, *l.c.*, p. 27.

Bristles of the epistome black. Abdomen black. Length, 18 mm.; wing, 12–13 mm.

Hab. Auckland (Captain Broun); Wellington (Hudson).

Genus **SENOPROSOPIS**, Macquart (1839).

"Body narrow. Face rounded, without any projection, very narrow; moustache mixed with some long and slender hairs. Front narrow. Eyes large. Abdomen slender; male organ small and but slightly projecting. Femora, tibiæ, and tarsi with long slender hairs below. Wings with the fourth posterior cell petiolate, the petiole rather long and the terminal nervure oblique" (Macquart).

In the New Zealand species the face projects slightly in the female, but not nearly so much as in *Asilus*. Also they have not the long drooping hairs on the front. But in other respects they closely resemble the type. The first joint of the antennæ is cylindrical, rather long and narrow in the male shorter in the female; the second cyathiform; the third subulate.

Senoprosopis lascus.

Asilus lascus, Walker, Cat. Dipt. in Brit. Mus., p. 466 (1849);
Hutton, Cat. Dipt. N.Z., p. 30.

Vertex with yellow hairs, face black. Bristles of the epistome white. Antennæ black; second joint and base of the third joint brown in the male, yellow in the female. Abdomen dark-brown, with scattered yellow hairs; the posterior portions of the first six segments yellow. Wings grey. Legs yellowish-brown, the outer surface and the tarsi darker brown; the femora and tibiæ with a few long white hairs, in addition to the shorter ones. Length, 12 mm.; wing, 9½ mm.

Hab. Auckland (Captain Broun); Wellington (Hudson).

Senoprosopis meridionalis, sp. nov.

Face yellowish-white. Antennæ black in both sexes. Bristles of the epistome yellowish-white, with a row of black ones above. Thorax yellowish-brown above, with two longitudinal bands and some spots outside them dark-brown; the sides yellowish-brown, with few hairs. Abdomen almost hairless; the first three segments yellowish-brown with dark-brown rings, the posterior segments dark-brown. Halteres dark-brown. Wings greyish; veins black. Legs reddish-brown, the upper surfaces of the femora and the tarsi dark-brown; the hairs yellowish, the bristles black; some long hairs on the fore femora and tibiæ. Length, ♂ 12 mm., ♀ 14 mm.; wing, ♂ 6½ mm., ♀ 8 mm.

Hab. Christchurch (H. Clark).

In addition to the colours, the antennæ differ from those of the last species in having the first joint shorter in the male, and in the second joint being as long as the first.

Family BOMBYLIDÆ.

“Three basal cells much prolonged; anterior intercalary vein present, almost without exception; the posterior always wanting. Third joint of the antennæ simple; empodia quite rudimentary” (Loew).

Genus FRAUDATOR, gen. nov.

Eyes contiguous, the facets coarser above than below. Face not projecting. Antennæ approximated at their bases; first and second joints short; the third much longer than the other two together, swollen near the base and gradually tapering to a long point, glabrous. Proboscis short. Abdomen narrow-linear. Tibiæ without spurs; no empodia. Third longitudinal vein branched near the end; no posterior intercalary vein; third basal cell closed, petiolate.

I include this genus in the *Bombylidæ* on account of the absence of the posterior intercalary vein, but it is very different in appearance from the other members of the family, having a superficial resemblance to *Heleodromia fumosa*. In the neuration of the wing it resembles *Oncodocera* (Macq.), but that genus has the abdomen broad and oval.

Fraudator perspicuus, sp. nov.

Eyes piceous; antennæ black. Thorax black, with a tawny patch on each shoulder; the posterior portion and scutellum yellowish, the sides silvery. Abdomen dark-brown, with scattered white hairs. Halteres white. Wings smoky, a clear patch just outside the stigma, which is large; fork of the third longitudinal vein leaving at a very acute angle, then curving forwards and joining the margin nearly at right angles;

anterior branch of the fourth longitudinal vein, beyond the discal cell, bent forwards, and then curving outwards to the margin of the wing. Legs dark-brown. Length, 7 mm.; wing, 8 mm.

Hab. Wellington (Hudson).

Family THEREVIDÆ.

“Three basal cells much prolonged; the two intercalary veins present; the third longitudinal forked. Antennæ with or without a style. No empodium. Under-lip fleshy” (Loew).

Genus ANABARHYNCHUS, Macquart (1848).

Proboscis salient, thick, turned upwards, generally hiding the palpi. Antennæ inserted towards the lower part of the head; the first joint cylindrical, the second short, the third terminated by a short style. Fore and middle femora without bristles, hind femora with a few only. Neuration of the wing as in *Thereva*, but the fourth posterior cell is open. Female with the eyes further apart than in the male, and with a circle of setæ at the end of the abdomen.

KEY TO THE SPECIES.

Third joint of the antennæ longer than the first, glabrous or nearly so.

Body black.

Tibiæ reddish *A. bilineatus*.
Tibiæ black *A. macri*.

Body brown or dark-grey.

Legs piceous, with yellow knees *A. innotatus*.
Legs brownish-yellow.

Length of the wing, 9 mm. *A. luridus*.

Length of the wing, 6 mm.

Wings without spots *A. exiguus*.

Wings with spots *A. nebulosus*.

Third joint of the antennæ not longer than the first, hairy at the base.

Length of the wing, 9 mm. or 10 mm.

Thorax with two golden bands *A. castaneus*.

Thorax with two silver bands *A. micans*.

Length of the wing, 6 mm. *A. cupreus*.

Section A.

Abdomen rather broad, subconical, black or brown, with white hairs. Length of the first joint of the antennæ less than twice the breadth; second joint subquadrate; the third joint longer than the first, conical, naked or with a few hairs on the upper surface at the base.

Anabarhynchus bilineatus.

Bibio bilineata, Fabricius, Syst. Ent., p. 757 (1775). *Thereva bilineata*, Hutton, Cat. Dipt. N.Z., p. 32. *Saropogon viduus*, Hudson, Man. N.Z. Ent., p. 55, pl. vi., fig. 4.

Front, above the antennæ, brownish-white, the vertex

black; antennæ and proboscis piceous; white hairs on the lower surface of the head and black on the crown. Thorax brownish-black, with two brownish-white conspicuous longitudinal bands, which do not pass on to the scutellum. Abdomen shining-black, with white tomentum below. Halteres black. Wings hyaline, the veins dark-brown. Legs black, except the tibiæ, which are yellowish-red with black apices. Length, 16 mm.; wings, 12½ mm.

Hab. Wellington (Hudson); Christchurch (H. Clark); Dunedin (F. W. H.).

This species appears to be rare.

Anabarhynchus maori, sp. nov.

Head with white hairs below, black on the crown; face black; first and second joints of antennæ black, the third joint piceous; proboscis black. Thorax black, with greyish tomentum and short black hairs; four darker longitudinal lines. Abdomen black, rather shining, covered on the sides and below with white hairs. Wings hyaline, the veins piceous. Legs black. Length, ♂ 10 mm., ♀ 12 mm.; wing, ♂ 9 mm., ♀ 10 mm.

Hab. Wellington (Hudson); Christchurch (H. Clark).

Anabarhynchus innotatus.

Thereva innotata, Walker, *Insecta Saundersiana*, vol. 1, p. 455 (1856).

“Cinereous, hardly pilose. Head, excepting the vertex, and pectus whitish. Thorax with a few black bristles on each side; scapulae tawny. Abdomen hoary on each side and beneath towards the base. Legs piceous; knees tawny; tarsi black. Wings grey; veins and halteres brown. Length of the body, 5 lines (11 mm.); expanse of the wings, 8 lines (17 mm.)” (Walker).

Hab. Christchurch (F. W. H.); Ashburton (Smith).

I should call this species brownish-black or brown, but sometimes the abdomen is cinereous, owing to its being covered with grey tomentum. Length, ♂ 10 mm., ♀ 14 mm.; wing, ♂ 8 mm., ♀ 10 mm.

Anabarhynchus luridus.

Anabarhynchus luridus, Schiner, *Reise der “Novara,”* Dipt., p. 148 (1868); Hutton, *Cat. Dipt. N.Z.*, p. 32.

General colour brown, the thorax with darker streaks. Abdomen often cinereous, with grey tomentum. Legs tawny, the femora fuscous in the male but not in the female. Length, ♂ 10 mm., ♀ 10–13 mm.; wing, ♂ and ♀ 9 mm.

Hab. Christchurch (F. W. H.); Ashburton (Smith).

This, which is our commonest species, feeds on pollen. It

is hardly distinct from the last, the colour of the legs being variable.

Anabarhynchus exiguus, sp. nov.

Brown, with grey hairs on the abdomen. Front, between the eyes, dark-brown, almost black; third joint of the antennæ nearly black. Thorax with yellowish-brown tomentum and scattered black bristles. Halteres pale-yellow. Wings yellowish, the veins near the base yellow; in the centre and posterior they are dark-brown. Legs and lower surface of the abdomen tawny. Length, ♂ $7\frac{1}{2}$ mm., ♀ 7–9 mm.; wing, ♂ and ♀ 6 mm.

Hab. Christchurch (F. W. H.).

Anabarhynchus nebulosus, sp. nov.

Male.—Brown, with short white hairs all over the body. Short black hairs on the occiput, brown hairs on the vertex; hypostoma without hairs. Thorax with five indistinct, longitudinal, darker bands. Halteres yellow. Wings clear, with dusky clouds in the centres of the cells, except the first submarginal, in which the cloud is near the tip. Legs dusky, except the tibiæ, which are yellow. Length, 9 mm.; wing, 8 mm.

Hab. Wellington (Hudson).

I have not seen the female.

Section B.

Abdomen linear, reddish-brown. Length of the first joint of the antennæ more than twice its breadth; the second subglobular; the third not longer than the first, oval or linear, hairy at the base.

The species of this section have the third joint of the antennæ hairy, as in *Xestomyza*, but the shape of the antennæ is different, and the anterior legs are not elongated.

Anabarhynchus castaneus, sp. nov.

Chestnut-brown, the face and thorax with golden tomentum, which is denser on the scutellum and on two bands on the mesonotum. The first six segments of the abdomen fuscous posteriorly on the dorsum; under-surface and legs castaneous. Hairs on the front and antennæ black, those on the lower surface of the head white. Abdomen linear-conical, almost naked. Wings yellowish, the veins fuscous; no stigma, but a dusky cloud in the middle of the marginal cell, with a clear space inside it; another dusky cloud in the first posterior cell, close to its base; sometimes another in the base of the second submarginal and centre of the first posterior cells. Hypostoma with white hairs. Length, 12 mm.; wing, 10 mm.

Hab. Christchurch (H. Clark); Wellington (Hudson).

Anabarhynchus micans, sp. nov.

Dark castaneous, with two silver bands on the thorax and a longitudinal silver band along the dorsum of the abdomen from the scutellum to the fifth segment. Face with golden tomentum; no bristles on the lower surface of the head; hypostoma without hairs. Abdomen linear. Wings clear, except the tip and the costal cell, which are dusky, and with dusky clouds at the fork of the third longitudinal, at the base of the first posterior, and at the outer end of the discal cells; posterior cross-vein bordered with dusky. Legs yellow, except the tips of the femora, tibiæ, and metatarsi, as well as the other joints of the tarsi, which are fuscous. Length, ♂ and ♀ 10 mm.; wing, ♂ 9 mm., ♀ 8 mm.

Hab. Wellington (Hudson).

Anabarhynchus cupreus, sp. nov.

Dark reddish-brown, sparingly covered below with short white tomentum. Occiput white, the face piceous. Hypostoma without hairs. Antennæ piceous, the first joint elongated; the third sublinear, shorter than the first; the basal half covered with stiff hairs. Thorax with three white bands, the median one narrow, the outer pair much broader. Abdomen linear, shining. Wings clear, except the apex and a band from the stigma to the discal cell, which are fuscous; veins nearly black. Legs paler than the body, the base of the metatarsus paler than the rest. Length, 9 mm.; wing, 6 mm.

Hab. Wellington (Hudson).

Family CYRTIDÆ.

“Thorax and abdomen inflated. Eyes occupying the greatest part of the head. Tegulæ vaulted, exceedingly large. Wings naked, with variable neuration, sometimes very intricate, sometimes very incomplete; the basal cells, when present, are of considerable length. Terminal joint of the antennæ simple. Tibiæ without spurs; empodium much developed, pulvilliform” (Loew).

KEY TO THE GENERA.

Veins of the wing strong; proboscis long.			
Abdomen subcircular; eyes hairy .. ..	..	..	<i>Apsoma.</i>
Abdomen oblong; eyes bare .. ..	..	..	<i>Helle.</i>
Posterior veins of the wing weak; proboscis short ..	..	..	<i>Henops.</i>

Genus APSOMA, Westwood (1876).

Head roundly tranverse, eyes contiguous in front, hairy. Ocelli 3. Antennæ inserted in the middle of the face; first joint small, the second elongato-ovate at the base and produced into a long seta. Proboscis elongated, as long as the

thorax ; the apex 2-lipped. Neuration nearly complete ; the third longitudinal vein curved downwards and forked after the cross-vein ; discal cell much elongated ; two distinct basal cells ; anal cell closed ; a triangular cell below the discal. Legs slender. Abdomen almost globose. Colour metallic.

Apsoma muscaria.

A. muscaria, Westwood, Trans. Ent. Soc. London, 1876, p. 510, pl. v., fig. 2.

“ Very convex, shining, coppery-green, with yellowish pubescence ; proboscis and antennæ black. Legs dirty-yellow, middle of the femora darker. Wings hyaline, the veins black. Length, 8–9 mm. ; of proboscis, 4 mm. ; expanse of wings, 18 mm.” (Westwood).

Hab. New Zealand (Hope collection, Oxford).

I have not seen this species. The figure shows the abdomen as broad as long, and pointed at the apex.

Genus HELLE, Osten-Sacken (1896).

“ Eyes glabrous, contiguous above the antennæ as far as the ocellar triangle. Three ocelli. Antennæ inserted about the middle of the head (seen in profile), very small ; second joint incrassate at the base and attenuated beyond it in the shape of an arista-like prolongation. Proboscis elongate. Hind part of the head swollen. Thorax gibbous ; prothoracic lobes contiguous along a rather long suture, on both sides of which they expand hindwards, so that the hind margin of the prothorax shows a deep emargination. Neuration almost complete ; a single submarginal cell ; an elongate, somewhat pentagonal, discal cell ; four posterior cells, incomplete in consequence of the post-discal veins not reaching the margin ; two distinct basal cells ; the anal cell closed long before the margin, its petiole stunted a little before reaching the margin. Tegulæ large. Legs smooth, without spurs ; tarsi but little shorter than the tibiæ ; joints three and four are the shortest, both together nearly equal the first in length. Three pulvilli. Abdomen oval, with the first segment short ; the five other dorsal segments longer and nearly of the same length, with coarctations at the incisures ” (Osten-Sacken).

The neuration closely resembles that of *Megaiybus pictus*, Westwood, Trans. Ent. Soc. London, 1876, pl. v., fig. 4a.

Helle longirostris.

Acrocera longirostris, Hudson, Man. N.Z. Ent., p. 56, pl. vii., fig. 4, 1892 (no description). *Helle longirostris*, Osten-Sacken, Ent. Mo. Mag., 2nd series, vol. vii., p. 16 (1896).

“ Face brownish-yellow, its upper part and hind parts of the head black ; the latter with pale down. Upper part of

the thorax greenish-bronze, densely marked with microscopic transverse striæ and covered with slight pale-golden down. Abdomen greenish-bronze, with pale-golden pubescence, the posterior edges of the segments yellowish-brown. Legs brown, the tibiæ and tarsi paler; joints of the latter pale-yellow at the base. Wings hyaline, slightly tinged with brownish; veins brown. Length, 5–6 mm." (Osten-Sacken).

Hab. Wellington and Nelson (Hudson). Rare.
I have not seen this species.

Genus HENOPS, Illiger (1806).

Proboscis not apparent. Antennæ inserted on the lower part of the head; the second joint bearing an elongated style with two short bristles at the end. Eyes glabrous. Neuration imperfect; the second longitudinal vein forked; the third longitudinal vein rudimentary; no discal cell; one distinct basal only; branches of the fourth longitudinal vein disconnected. Abdomen subglobose.

Henops brunneus.

H. brunneus, Hutton, Cat. Dipt. N.Z., p. 24 (1881); Maskell, Trans. N.Z. Inst., vol. xx., p. 106, pl. x.

Head black; antennæ pitch-brown. Thorax pitch-brown, with scattered tawny hairs. Abdomen brown, the posterior margin of each segment tawny. Legs pale-brown. Wings hyaline; the costa and second longitudinal vein brown. Length, 5–6 mm.; wing, 5–7 mm.

Hab. Otago (F. W. H.); Wairarapa (Maskell); Auckland (Broun).

Henops nitens, sp. nov.

Shining black, with black hairs on the thorax and abdomen. The tibiæ, except their bases, the tarsi, except the last joint of each, and a spot on each side of the second and third abdominal segments, tawny. Wings hyaline. Length, 5–6½ mm.; wing, 4½–5 mm.

Hab. Auckland (Broun); Wellington (Hudson).

Family EMPIDÆ.

"Three basal cells complete, rather large, the third shorter than the second; posterior basal cross-vein parallel to the border of the wing; third longitudinal frequently forked; anterior intercalary vein present, the posterior absent. First joint of the antennæ not much shortened, third joint with an apical bristle sometimes resembling a style. Empodium membranaceous and of a linear form" (Loew).

KEY TO THE GENERA.

Style shorter than third joint of antennæ; fore coxæ moderate.	
Proboscis longer than the head	<i>Empis.</i>
Proboscis not longer than the head	<i>Hilara.</i>
Style longer than third joint of antennæ; fore coxæ elongated	<i>Clinocera.</i>

Genus *EMPIS*, Linnæus.

Eyes contiguous in the male, remote in the female. Antennæ with the first joint cylindrical; the second cyathiform, about half the length of the first; the third subulate, compressed, longer than the style. Proboscis much longer than the head, directed downwards. Wings with the third longitudinal vein forked.

KEY TO THE SPECIES.

Fork of the third longitudinal leaving at an acute angle.	
Proboscis stout, more than twice the length of the head	<i>E. hudsoni.</i>
Proboscis slender, less than twice the length of the head	<i>E. smithii.</i>
Fork of the third longitudinal leaving at almost a right angle	<i>E. brouni.</i>

Empis hudsoni, sp. nov.

Dark-brown, almost black in some lights, the lower surface and femora silvery. Head, thorax, and legs thinly clothed with black hairs. Third joint of the antennæ pyriform, the style less than half the length of the joint. Proboscis very stout, more than twice the length of the head. Wings tinted with fuscous, and with a darker cloud in the marginal cell; the veins black; fork of the third longitudinal emerging at an acute angle. Length, 3–3½ mm.; wing, 4½ mm.

Hab. Wellington (Hudson).

Empis smithii, sp. nov.

Brown, the thorax dusted with yellow, and with four brown bands; a few scattered black hairs on the head, thorax, and legs. Proboscis slender, about one and a half times the length of the head; yellowish, with the front and tip piceous. Halteres tawny. Wings brown; the veins black. Legs tawny, the last joint of the tarsi fuscous. Wing as in the last species. Length, 5 mm.; wing, 6 mm.

Hab. Ashburton (Smith).

Empis brouni, sp. nov.

Brown, covered all over with grey tomentum. Proboscis brown, slender, about one and a half times the length of the head. Third joint of the antennæ subulate, the style short. Wings tinted grey; the fork of the third longitudinal leaves

the vein almost at a right angle and proceeds straight forward to the margin. Length, 6 mm. ; wing, 6 mm.

Hab. Auckland (Broun).

Genus *HILARA*, Meigen (1822).

Third joint of the antennæ with a short style ; the first joint short. Proboscis straight, perpendicular, not longer than the head. Wings with the third longitudinal forked.

***Hilara fulvipes*, sp. nov.**

Reddish-brown ; the legs tawny, except the last four joints of the tarsi, which are fuscous. Third joint of the antennæ slightly swollen, the style about half as long as the joint. Proboscis shorter than the head, nearly vertical. The fork of the third longitudinal vein leaves nearly at a right angle and then curves outward, joining the margin acutely. Length, 4 mm. ; wing, 4 mm.

Hab. Christchurch (F. W. H.).

The style is shorter than the third joint of the antennæ.

Genus *CLINOCERA*, Meigen (1822).

Proboscis thick. First joint of the antennæ short, the third shorter than the style. Fore coxæ elongated, the femora not thickened. Third longitudinal vein forked ; discal and both basal cells present ; four posterior cells ; sixth longitudinal vein obsolete before reaching the margin.

***Clinocera fumosa*, sp. nov.**

Eyes dark-red, the antennæ and proboscis black. Head and thorax black, the latter with some silvery down below, and faint indications of two pale bands on the mesonotum. Abdomen dark-brown, with scattered black hairs. Halteres white. Wings smoky, the stigma indistinct ; veins nearly black ; fork of third longitudinal vein leaving at an acute angle, not bent forwards ; fourth longitudinal straight. Legs blackish-brown. Length, 7 mm. ; wing, 6 mm.

Hab. Wellington (Hudson).

Family *DOLICHOPODIDÆ*.

“ First basal cell rather short, the second united with the discal, the third small ; auxiliary vein running into the first longitudinal vein ; third longitudinal vein simple ; the fourth sometimes furcate ; no intercalary vein. Hypopygium symmetrical, bent under the abdomen. Empodium small, membranaceous, of a linear form ” (Loew).

KEY TO THE GENERA.

Fourth longitudinal vein forked	<i>Psilopus</i> .
Fourth longitudinal vein simple.	
Abdomen very short; posterior cross-vein near margin of wing	<i>Liancalus</i> .
Abdomen large; posterior cross-vein remote from the margin	<i>Ostenia</i> .

Genus *PSILOPUS*, Meigen (1824).

Abdomen and legs slender; face broad in both sexes, the vertex concave. First joint of the antennæ naked, the second with bristles; the third short, and with an apical or subapical arista. Eyes generally hairy in the male. Fourth longitudinal vein forked.

In all the New Zealand species known to me the first longitudinal vein hardly reaches the middle of the wing, and the anterior branch of the fourth longitudinal emerges almost at a right angle and then curves outwards, reaching the margin above the apex and near the tip of the third longitudinal. The cilia on the squamæ are pale. In the males the costa has rather long bristles, which do not appear in the females. There are black bristles on the second joint of the antennæ, the vertex, and the thorax. There are white hairs on the face, behind the eyes, which are red, and not hairy.

KEY TO THE SPECIES.

Legs pale-yellow, the femora fuscous	<i>P. restrictus</i> .
Legs fuscous, the knees yellow	<i>P. mobilis</i> .
Legs black, the femora with green reflections.	
Arista dorsal	<i>P. malitiosus</i> .
Arista apical	<i>P. fuscatus</i> .
Legs pale-yellow, the tips fuscous	<i>P. gemmatus</i> .

Section A. Arista apical.

***Psilopus mobilis*, sp. nov.**

Head and thorax bluish-green, with metallic reflections; abdomen bronzy, with dark bands. Antennæ black, the arista apical. Eyes red. Wings clear, the veins black. Legs fuscous, the knees tawny, the femora with green metallic reflections. Length, 5 mm.; wing, 5 mm.

Male.—Arista clubbed at the end. The anterior portion of each abdominal segment dark-brown.

Female.—The arista not clubbed at the end. The posterior portions of the abdominal segments brown above.

Hab. Christchurch (F. W. H.); Ashburton (Smith).

Probably related to *P. globifer* (Wied).

***Peliopus fuscatus*, sp. nov.**

Male.—Head and thorax metallic blue; abdomen bronzy, with dark bands. Arista not clubbed at the end. Wings

clear, the veins black. Legs black. Length, 4 mm.; wing, 4 mm.

Hab. Otago (F. W. H.).

The female is unknown.

Section B. Arista dorsal.

Psilopus restrictus, sp. nov.

Female.—Head bluish-green, thorax greenish-blue, abdomen brownish-green, all with metallic reflections. Arista long, subterminal. Wings greyish, the veins tawny. Femora fuscous, the tibiæ and tarsi tawny. Length, 5 mm.; wing, 4 mm.

Hab. Christchurch (F. W. H.).

The male is unknown.

Psilopus malitiosus, sp. nov.

Female.—Head bluish-green, thorax and abdomen bronze-green, all with metallic reflections. Antennæ black, the arista subterminal. Wings greyish, the veins black. Legs fuscous, the femora with metallic reflections. Length, 4 mm.; wing, 4 mm.

Hab. Christchurch (F. W. H.); Ashburton (Smith).

The male is unknown.

Psilopus gemmatus.

P. gemmatus, Walker, Cat. Dipt. in Brit. Mus., p. 647 (1849); Hutton, Cat. Dipt. N.Z., p. 33.

“Bluish-green; abdomen golden-green, bluish-green at the base. Legs pale-yellow, tarsi pitchy towards their tips. Length, 5 mm.” (Walker).

Hab. Auckland (Dr. Sinclair).

I have not seen this species.

Genus LIANCALUS, Loew (1857).

“Bristles on the body neither numerous nor long. Wings elongated; the posterior transverse vein less than its length from the margin of the wing. Legs elongated and slender; the first joint of the hind tarsi without bristles on the upper side, not shorter than the second, but generally longer. Face in both sexes broad, with a small tubercle upon the lowest third of each side of the orbit, and with an indistinct swelling running from one tubercle to the other. Antennæ rather short, the first joint without hairs; the apparently bare arista dorsal, distinctly two-jointed. The hypopygium of the male imbedded” (Loew).

Liancalus vagus, sp. nov.

Metallic greenish-bronze; the head dark-brown; the eyes red. Second joint of the antennæ with short bristles, the arista distinctly dorsal, rather short, curved. A few short bristles on the vertex and occiput. Wings clear, the veins piceous; the second longitudinal turning forwards at the tip; the third longitudinal curving backwards; the fourth longitudinal straight; posterior cross-vein nearer the margin than its length. Legs greenish-bronzy; the bristles of the fore femora equal, regular, rather distant; the lower edge of the fore tibiæ with a row of bristles shorter than those on the femur, but with a stronger one at the tip. The other legs with a few scattered bristles. Length, 3 mm.; wing, $4\frac{1}{2}$ mm.

Hab. Christchurch (F. W. H.).

The scutellum has four bristles.

Genus **OSTENIA**, gen. nov.

First joint of the antennæ rather long, nearly cylindrical, without hairs; the second joint very short, with a circle of bristles; the third joint short, transverse, with short hairs; the arista dorsal, strong, bent near its base, almost bare. Eyes with very short hairs. Front broad in both sexes; bristles on the vertex and occiput. Proboscis short and stout. Thorax convex above, with a transverse hollow before the scutellum; mesothorax and scutellum with bristles. Abdomen large, oval, depressed, with a few short bristles; apparently of five segments in the female, six in the male. Hypopygium not inflected under the abdomen, but apparently withdrawn into the sixth segment. Wings rather short and broad; the costa bristly. The auxiliary vein ends in the first longitudinal. The first longitudinal extends to nearly half the length of the wing; fourth longitudinal simple, nearly parallel to the third; posterior cross-vein distant from the margin by more than twice its length. Legs short and stout for the family; the femora and tibiæ with long scattered bristles.

This genus appears to come nearest to *Xanthochlorus*, Loew, but it differs in the first joint of the antennæ and the hypopygium, as well as in its robust form, oval abdomen, and short legs. I have named it after Baron Osten-Sacken.

Ostenia robusta, sp. nov.

Head and thorax brown, non-metallic; abdomen and legs darker, with submetallic reflections. Antennæ and proboscis piceous. Abdomen bluish-black in the male, greenish-black in the female. Wings brown; the veins dark-brown, lighter near the base; second longitudinal bent backwards near the tip; the third parallel to the second, but more bent down

near the tip; the fourth nearly parallel to the third for three-quarters of its length, then bent slightly forwards towards the third, and backwards again near the tip, without any abrupt bends. Length, ♂ 7 mm., ♀ 8 mm.; wing, ♂ and ♀ 6 mm.

Hab. Christchurch (F. W. H.).

Series CYCLORRHAPHA ASCHIZA.

Family PHORIDÆ.

“Antennæ apparently single-jointed, with a long bristle. Wings with several stout veins running into the costa, and three or four weak ones, which run across the surface of the wings, and are not completely connected with the hindmost of the stout veins, from which they appear to issue. Femora flattened” (Loew).

Genus PHORA, Latreille (1796).

Small. Arista long and bare. Thorax short-elliptical. Wings rather longer than the body; costa ending before or a little beyond half the length of the wing; generally ciliated. Abdomen generally narrow and longer than the thorax. Legs rather long, with a few bristles.

Phora omnivora.

Phora omnivora, Hudson, Man. N.Z. Ent., p. 62, pl. vii., figs. 15, 15a (1892). The neuration of the wing is incorrect.

Black, the legs and palpi pale-brown, the latter with black hairs. Halteres yellowish. Costal vein with a double row of bristles extending to nearly the middle of the wing. Also some bristles at the anal angle of the wing. Auxiliary vein distinct, ending in the first longitudinal, which is two-thirds the length of the third longitudinal. Second longitudinal emerging from the third near its tip. A spurious veinlet (or fold of the membrane) extends from the tip of the third longitudinal to six-sevenths of the length of the wing. The fourth longitudinal is slightly curved backwards, reaching the margin above the tip of the wing. The fifth, sixth, and seventh are slightly undulated, the fifth reaching the margin below the tip and almost exactly under the end of the fourth longitudinal; the seventh ends opposite the end of the third. Middle and hind tibiæ spurred. Length, 2 mm.

Hab. Wellington, Christchurch, and Dunedin (F. W. H.).

This species is very like *P. rufipes*, Fabricius, but without European specimens for comparison I do not like to say that the two are identical.

Family SYRPHIDÆ.

“Three basal cells much prolonged; third longitudinal vein simple; a spurious longitudinal vein between the third and fourth. Fourth longitudinal united at its end with the third; no intercalary veins. Hypopygium unsymmetrical. No empodium” (Loew).

The third basal cell is closed, and there are three posterior cells, of which the first and second are closed and the third is open. In *Melanostoma decessa* the spurious longitudinal vein is absent.

KEY TO THE GENERA.

Abdomen broad; submarginal cell dilated.				
Marginal cell closed	..	..	..	<i>Eristalis.</i>
Marginal cell open	..	..	..	<i>Helophilus.</i>
Abdomen slender; submarginal cell not dilated.				
Anterior basal cell attaining to more than half the discal	..	..	..	<i>Milesia.</i>
Anterior basal cell attaining to less than half the discal.				
Scutellum pale	..	..	..	<i>Syrphus.</i>
Scutellum dark	..	..	..	<i>Melanostoma.</i>

Genus ERISTALIS, Latreille (1802).

Antennæ approximated, seated on a tubercle; arista at the base of the third joint. First and second longitudinal veins meeting before the margin of the wing. Halteres covered by the squamæ. Eyes contiguous in the male.

Eristalis tenax.

Musca tenax, Linn., *Syt. Nat.*, ii., 984. *Eristalis tenax*, Hudson, *Trans. N.Z. Inst.*, vol. xxii., p. 187.

Piceous, with tawny hairs. Abdomen with a large tawny spot on each side, which is much larger in the male than in the female. Hind borders of the segments tawny. Length, ♂ 13 mm., ♀ 15 mm.; wing, ♂ 11 mm., ♀ 12 mm.

Hab. Throughout New Zealand. Very abundant.

Introduced, probably from England. First noticed in Wellington in the spring of 1888, by Mr. G. V. Hudson. Mr. W. W. Smith took two specimens at Ashburton in November of the same year, and by 1890 it had become common.

Genus HELOPHILUS, Meigen (1822).

Body broad. Eyes separated in both sexes. Face prominent. Antennæ inserted on a projection in front; the third joint almost circular; the style inserted near its base. Thorax hairy. Abdomen partly hairy or entirely naked. Legs hairy; the posterior femora thickened, the tibiæ incurved, produced into a tooth at the apex on the inner side.

Wings with the marginal cell open; the submarginal petiiform. The males are smaller than the females.

KEY TO THE SPECIES.

Abdomen black, with white spots	<i>H. cingulatus.</i>
Abdomen black, with yellowish-red spots.	
Second segment only with yellow spots.	
Yellow spots about half the depth of the segment	<i>H. trilineatus.</i>
Yellow spots nearly the whole depth of the segment	<i>H. vicinus.</i>
Second and third segments with yellow spots ..	<i>H. antipodus.</i>
Abdomen bronzy.	
Antennæ black	<i>H. ineptus.</i>
Antennæ red, with a black border	<i>H. chathamensis.</i>
Abdomen blue	<i>H. latifrons.</i>

Section A.

All the abdominal segments with close short hairs. No tooth on the hind tibiæ.

Helophilus cingulatus.

Syrphus cingulatus, Fabricius, Syst. Ent., p. 767 (1775).

Eristalis cingulatus, Hutton, Cat. Dipt. N.Z., p. 40; Hudson, Man. N.Z. Ent., p. 57, pl. vii., fig. 2.

Front rather narrow, the sides parallel; forehead dark-chestnut, with a transverse chevron of reddish-white and some white at the base of the epistome; antennæ, epistome, and peristome dark-chestnut; third joint of the antennæ rather broader than long, the style naked. Thorax black, with reddish-black tomentum; scapulæ ferruginous; a pair of narrow longitudinal white lines on the dorsum, and a pair on each side, the latter with a sharp re-entering angle in the middle. Scutellum shining, dark-chestnut. Abdomen black, the greater part thickly covered with short hairs. At the base there is a band of long yellowish-white hairs, which are shorter in the middle; second segment with a broad transverse white band interrupted in the middle; third and fourth segments with four small round white spots, the outer pair on the fourth segment, with a tuft of white hairs. Outside the inner pair of spots on the third and fourth segments is a polished space without any hairs. Wings hyaline, the veins black; submarginal cell closed, but not petiolate. Legs hairy, black; the knees inside of the fore and middle tibiæ and the whole of the tarsi ferruginous. Length, 14–15 mm.; wing, 12–13 mm.

Hab. Wellington (Hudson); Picton, Christchurch, and Dunedin (F. W. H.). Rare.

Section B.

First and second abdominal segments with close short hairs, the others shining, and with scattered hairs only. Hind tibiæ with a blunt tooth at the apex, on the inside.

Helophilus trilineatus.

Syrphus trilineatus, Fabricius, Syst. Ent., p. 766 (1775).
Helophilus trilineatus, Voy. "Erebus" and "Terror,"
 Insects, pl. 7, fig. 19; Hutton, Cat. Dipt. N.Z., p. 41;
 Hudson, Man. N.Z. Ent., p. 58, pl. vii., fig. 1.

Face golden. Thorax grey, with three strongly marked black bands; the sides covered with golden hairs. Abdomen black, with a large yellowish spot on each side of the second segment, which occupies rather more than the anterior half of the segment. Legs testaceous, the femora black, except the tip of those of the fore and middle legs.

Male.—The whole of the vertex black, the boundary between it and the yellow of the face being a well-defined straight line. Hind tibiæ black, with a broad median testaceous band.

Female.—Forehead often dark-grey; the black of the vertex confined to the ocellar triangle. Hind femora sometimes with a testaceous spot on both inner and outer sides; the hind tibiæ testaceous.

Length, ♂ 13 mm., ♀ 17 mm.; wing, ♂ 10 mm., ♀ 13 mm.

Hab. Throughout New Zealand.

Helophilus vicinus, sp. nov.

Like *H. trilineatus*, but the yellow spots on the second abdominal segment reach to the posterior margin.

Length, ♂ 12 mm.; wing, ♂ 11 mm.

Hab. Chatham Islands (Fougère).

I have not seen the female.

Helophilus antipodus.

H. antipodus, Schiner, Reise der "Novara," Dipt., p. 359 (1868). *Mallota antipoda*, Hutton, Cat. Dipt. N.Z., p. 40.

In this species the colours are almost the same as in *H. trilineatus*, but the abdominal spots are yellower, and occur on both the second and third segments. The vertex of the female is black, and resembles that of the male. In the male the yellow spots are larger than in the female, occupying nearly the whole of the second segment. The hind tibiæ are differently coloured in the two sexes, as in *H. trilineatus*. Length, ♂ 11 mm., ♀ 13–14 mm.; wing, ♂ 9 mm., ♀ 10–11 mm.

Hab. Throughout New Zealand. Not so common as *H. trilineatus*.

Section C.

All the abdominal segments nearly naked, shining. No tooth on the posterior tibiæ.

Helophilus ineptus.

H. ineptus, Walker, Cat. Dipt. in Brit. Mus., p. 608 (1849);
Hutton, Cat. Dipt. N.Z., p. 41.

Face yellow, the vertex piceous. Thorax grey, with three black bands above and one on each side before the wings; silvery below. Abdomen metallic-bronze, the centre of the segments with a triangular dead-black mark.

Male.—Legs black, except the basal halves of the tibiæ, which are testaceous.

Female.—Femora black; the tibiæ and tarsi testaceous, except the bases of the hind tibiæ.

Length, ♂ 11 mm., ♀ 12 mm.; wing, ♂ 9 mm., ♀ 12 mm.

Hab. Throughout New Zealand.

***Helophilus chathamensis*, sp. nov.**

Face grey, the vertex red. Third joint of the antennæ red, with a black border. Thorax dark-brown; the scutellum pale-tawny, blackish towards its base. Abdomen bronzy, with dead-black patches in the middle of each segment. Legs black, the knees and proximal portions of the tibiæ testaceous. Length, 9–11 mm.; wing, 8–10 mm.

Hab. Chatham Islands (Fougère).

My specimens have been in spirit, and the hairy covering is changed in appearance, and cannot be described.

Helophilus latifrons.

H. latifrons, Schiner, Reise der "Novara," Dipt., p. 359 (1868). *Mallota latifrons*, Hutton, Cat. Dipt. N.Z., p. 40.
H. hochstetteri, Nowicki, Mem. Krakauer Akad. Wissen., ii., p. 23 (1875); Hutton, Cat. Dipt. N.Z., p. 42; Hudson, Man. N.Z. Ent., pl. vii., fig. 8.

Thorax black, with indistinct grey bands. Abdomen dark steel-blue. Antennæ reddish-yellow, with a black base. The tip of the scutellum and a tubercle under the wings are reddish-yellow. The legs are black, with the apex of the middle femora and the base of the middle tibiæ generally reddish-yellow. Length, 9–11 mm.; wing, 7–9 mm.

Hab. Throughout New Zealand. Abundant.

Genus MILEZIA, Latreille (1802).

Body narrow. Eyes nearly contiguous in the male. Wings incumbent in repose; the marginal cell open and the submarginal cell simple; the chief cross-vein nearer to the apex than to the base of the discal cell.

Milesia bilineata.

Milesia bilineata, Walker, Cat. Dipt. in Brit. Mus., p. 566 (1849); Hutton, Cat. Dipt. N.Z., p. 43.

Above black, with two pale-tawny stripes on the thorax. Clothed with tawny hairs below. Legs black. Length, 15 mm.

Hab. Wellington (Earl).

I do not know this species.

Genus SYRPHUS, Fabricius (1775).

Body narrow, linear or oblong; eyes contiguous in the male. Wings incumbent in repose; the submarginal cell simple; the chief cross-vein much nearer to the base than to the apex of the discal cell. Third joint of the antennæ oval or round. Abdomen with five visible segments.

KEY TO THE SPECIES.

Stripes on the abdomen interrupted in the middle.

Face grey *S. novæ-zealandiæ.*
Face yellow.

Third joint of antennæ round, piceous .. *S. ortas.*

Third joint of antennæ oval, yellow .. *S. obesus.*

Second and third stripes on the abdomen continuous *S. ropalus.*

Syrphus novæ-zealandiæ.

S. novæ-zealandiæ, Macquart, Dipt. Exot., Supp. 5, p. 115 (1855); Hutton, Cat. Dipt. N.Z., p. 44. *S. ortas*, Hudson, Man. N.Z. Ent., p. 56, pl. vii., fig. 3.

Face greyish-white; vertex and prominence shining-black. Antennæ black, the third joint subcircular. Thorax greenish-bronze; scutellum shining, fulvous, with a dark base. Abdomen black, second, third, and fourth segments with a narrow, transverse, subbasal fascia, broadly interrupted in the middle, which is yellow or orange dusted with white; the anterior angles of the sixth segment yellow. Legs dark-brown, the middle and fore tibiæ lighter. Veins of the wing black. Length, 8–10 mm.; wing, 8–9 mm.

Hab. Throughout New Zealand (very common); Chatham Islands. Said to be found also in Polynesia.

This species varies in the colour of the transverse abdominal bands as well as in their breadth; also in the colour of the legs, which are sometimes almost black. Both sexes have the abdomen linear, and both are of the same size.

Schiner has identified this species with the Australian *S. ambustus*, Walker (1852), but that species has the scutellum ferruginous, the abdomen brassy-green on the sides and hind borders of the segments, the legs black with ferruginous knees, and the veins of the wing tawny.

Syrphus ortas.

S. ortas, Walker, Cat. Dipt. in Brit. Mus., p. 585 (1849); Hutton, Cat. Dipt. N.Z., p. 43. *S. rectus*, Nowicki, l.c., p. 24 (1875); Hutton, Cat. Dipt. N.Z., p. 44.

Face pale-yellow, the vertex black; antennæ piceous, ferruginous at the base. Thorax greenish-bronze, the scutellum fulvous. Abdomen black; the second, third, fourth, and fifth segments with oblique yellow bands interrupted in the middle. Legs fulvous, the tarsi and hind femora clouded with fuscous; darker in the male than in the female. Length, 9–12 mm.; wing, $7\frac{1}{2}$ –10 mm.

Hab. Auckland (Dr. Sinclair); Dunedin and Christchurch (F. W. H.). Apparently rare.

The oblique abdominal bands and the yellow face sufficiently distinguish this species from the last.

Syrphus ropalus.

S. ropalus, Walker, Cat. Dipt. in Brit. Mus., p. 593 (1849); Hutton, Cat. Dipt. N.Z., p. 44.

Face tawny; vertex coppery; antennæ tawny. Thorax coppery; the scutellum tawny or orange. Abdomen narrow, black, orange on each side of the base, and with four broad orange bands, of which the second and third are not interrupted, across the back. Legs tawny. Length, ♂ 7 mm., ♀ 9 mm.; wing, ♂ 6 mm., ♀ 8 mm.

Hab. Auckland (Dr. Sinclair); Kekerangu, 3,000 ft. (Hudson); Dunedin (F. W. H.). Rare.

The abdomen in the male is subcylindrical.

Syrphus obesus, sp. nov.

Face yellow, the vertex piceous; antennæ tawny, the third joint oval. Thorax piceous, with a tawny band on each side; the scutellum tawny, dull. Abdomen oblong in both sexes, black; the second, third, and fourth segments with a broad, tawny, transverse, basal fascia, all of which are narrowly interrupted in the female, but that of the fourth segment is

continuous in the male. The segments are also narrowly margined with tawny. Legs tawny; the bases of the fore and middle femora and the whole of the hind femora black. In the male the hind tibiæ have a dusky band. Length, ♂ 8 mm., ♀ 9 mm.; wing, ♂ and ♀ 7 mm.

Hab. Auckland (Captain Broun).

Genus MELANOSTOMA, Schiner (1860).

Medium size, nearly bare, metallic-black or greenish-black, the abdomen with lighter-coloured spots or bands. Antennæ short, third joint oval or a little elongate. Face tuberculate, black or black-green, never in ground-colour yellow, though frequently with whitish dust. Eyes bare, contiguous in the male. Thorax shining, without yellow or red marks. Abdomen elongate, slender, rarely oval, much flattened. Legs simple, the hind metatarsi sometimes a little thickened. Wings rather large, extending beyond the abdomen; marginal cell open; third longitudinal nearly straight; outer anterior angle of first posterior cell acute.

Plesia, of which *M. fasciatum* is the type, has priority of *Melanostoma*.

KEY TO THE SPECIES.

Abdomen with testaceous spots	..	..	..	<i>M. fasciatum</i> .
Abdomen black.				
Scutellum æneous	..	..	..	<i>M. apertum</i> .
Scutellum black..	..	..	..	<i>M. decessum</i> .

Melanostoma fasciatum.

Plesia fasciata, Macquart, Dipt. Exot., Supp. 4, p. 461, tab. 14, fig. 15 (1850); Hutton, Cat. Dipt. N.Z., p. 45.

Face and vertex black. Antennæ black, the third joint oval. Thorax and scutellum æneous. Abdomen oblong in the female, linear in the male; black; the second, third, and fourth segments with a large testaceous spot on each side, larger in the male than in the female; the fifth segment testaceous anteriorly. Legs tawny, the hind pair more or less fuscous. Length, 6 mm.; wing, 5 mm.

Hab. Christchurch, Whangarei, and Queenstown (F.W.H.).

The second longitudinal vein is nearly straight, very slightly curved forwards at the tip.

Melanostoma apertum, sp. nov.

Female.—Vertex and face black. Thorax and scutellum æneous. Abdomen oblong, bluish-black, without any bands. Legs tawny. Wings colourless, the stigma pale-yellow;

second longitudinal vein not sinuated near the tip; the third and fourth straight. Length, 6 mm.; wing, $5\frac{1}{4}$ mm.

Hab. Christchurch (F. W. H.).

My only specimen has, unfortunately, lost the antennæ; but it is so distinct in other respects that it will be easily recognised. The neuration of the wing agrees with that of *M. fasciata*.

Melanostoma decessum, sp. nov.

Male and Female.—Vertex black, the face silvery; antennæ piceous, the third joint oblong; tips of the proboscis and palpi fulvous. Thorax black, with slight æneous reflections; scutellum black. Abdomen oblong, black, without any bands. Femora black, the tibiæ and tarsi fulvous. Wings colourless, the stigma pale-brown; veins dark-brown; the spurious vein absent. Length, 8 mm.; wing, 7 mm.

Hab. Christchurch (Clark); Ashburton (W. W. Smith).

The eyes are hairy and contiguous in the male. The posterior cross-vein and the bend of the fourth longitudinal (apical cross-vein) are straight.

Series CYCLORRHAPHA SCHIZOPHORA.

Division I. MUSCIDEA CALYPTRATÆ.

Squamæ covering the halteres.

KEY TO THE NEW ZEALAND FAMILIES.

Antennæ in rounded pits	<i>Æstridæ.</i>
Antennæ not in rounded pits.	
Fourth longitudinal vein bent forwards.	
Arista bare or pubescent	<i>Tachinidæ.</i>
Arista plumose at the base, bare at the tip ..	<i>Sarcophagidæ.</i>
Arista plumose	<i>Muscidæ.</i>
Fourth longitudinal vein not bent forwards ..	<i>Anthomyidæ.</i>

Family ÆSTRIDÆ.

Antennæ inserted in rounded pits; the middle part of the face very narrow; the opening of the mouth very small; the oral organs rudimentary.

Genus GASTEROPHILUS, Leach (1817).

Body hairy; front broad. Antennæ very short, seated in a cavity of the face; the third joint round; arista bare. Squamæ very small. Fourth longitudinal vein nearly straight, slightly inclined backwards, and ending at some distance from the tip.

Gasterophilus equi.

Gastrus equi, Meigen, Dipt. iv., 175, i., pl. 38, figs. 21, 22.

Body tawny, with testaceous hairs. Wings with a transverse grey band beyond the middle. Male lighter in colour than the female. Length, 11–17 mm.; wing, 10 mm.

Hab. Throughout New Zealand. Introduced.

I first saw this species in 1892. Both it and the following species were exceedingly troublesome for the next two years, but since then their numbers have declined. In America it is thought that they are kept in check by sparrows feeding on the pupæ.

Gasterophilus hæmorrhoidalis.

Cæstrus hæmorrhoidalis, Linnæus, Syst. Nat., ii., 970, 4 (1761).

Body black, with testaceous hairs. Abdomen with a black band in the middle, and pale-yellow hairs at both ends. Wings clear. Length, 10–11 mm.; wing, 9 mm.

Hab. Throughout New Zealand. Introduced.

Mr. M. Murphy, secretary to the Canterbury Agricultural and Pastoral Association, informs me that this fly was first noticed in the North Island in 1889, and in Canterbury in 1891. It is thought to have been introduced by some Mexican circus-horses from San Francisco.

Genus **ÆSTRUS**, Linn. (1748).

Body pubescent, the front broad. Antennæ very short, seated in a cavity of the face, the third joint round; arista bare. Squamæ large. Fourth longitudinal vein bent forwards and joining the third longitudinal at a short distance from the tip of the latter.

Æstrus ovis.

Cæstrus ovis, Linnæus, Syst. Nat., ii., 970. *Cæstrus perplexus*, Hudson, Man. N.Z. Ent., p. 63, pl. vii., fig. 12.

Head and thorax pale-brown above, with numerous minute black tubercles. Abdomen dark-brown, tessellated with silvery. Legs pale-tawny. Wings clear. Length, 11 mm.; wing, $9\frac{1}{2}$ mm.

Hab. Throughout New Zealand. Introduced.

I first noticed this species at Homebush Station, in Canterbury, in 1873, but it is not common.

Family **TACHINIDÆ.**

“Arista of antennæ bare, or with very short pubescence. Thorax short. First posterior cell closed or only slightly opened. Legs short” (Loew).

Parasitic insects which lay their eggs on the larvæ of other insects.

KEY TO THE NEW ZEALAND GENERA.

- Abdomen oval or oblong, not curved under at the apex.
 Costa of the wing with a conspicuous bristle.
 Second joint of the arista elongated *Calcager*.
 Second joint of the arista quite short *Tryphera*.
 Costa of the wing without a conspicuous bristle.
 Abdomen hairy, and with macrochætæ.
 Facial ridges unarmed.
 First posterior cell ending near the tip
 of the wing *Macquartia*.
 First posterior cell ending considerably
 before the tip of the wing.
 Eyes hairy.
 Second joint of arista twice
 as long as broad.
 Abdomen oval, tawny *Hystricia*.
 Abdomen oblong, blue *Occisor*.
 Second joint of arista quite
 short *Nemoræa*.
 Eyes bare, or nearly so.
 Front smooth *Tachina*.
 Front longitudinally grooved.
 Mid-abdominal segments
 with discal setæ *Proscissio*.
 Mid-abdominal segments
 without discal setæ *Peremptor*.
 Facial ridges armed with a row of strong
 bristles.
 Eyes bare; antennæ covered *Cerosomyia*.
 Eyes hairy; antennæ exposed *Phorocera*.
 Abdomen glabrous, without macrochætæ *Gymnophania*.
 Abdomen nearly cylindrical, curved under at the apex *Phania*.

The following is a systematic arrangement of the genera according to the plan followed by Mr. W. D. Coquillet in his "Revision of the Tachinidæ of America north of Mexico" (1897):—

- First posterior cell ending close to the tip of the wing.
 Abdomen destitute of macrochætæ.
 Cheeks bare *Phania*.
 Cheeks with bristles *Gymnophania*.
 Abdomen bearing macrochætæ;
 cheeks bare *Macquartia*, *Tryphera*.
 First posterior cell ending some distance before the tip of the wing.
 Cheeks bare.
 Vibrissæ distinctly above the mouth.
 Eyes bare *Calcager*, *Peremptor*.
 Eyes hairy *Nemoræa*, *Hystricia*.
 Vibrissæ on a level with the anterior border of the mouth.
 Eyes bare *Tachina*, *Proscissio*, *Cerosomyia*.
 Eyes hairy *Phorocera*.
 Cheeks hairy; vibrissæ above the mouth *Occisor*.

Genus *MACQUARTIA*, R. Desvoidy (1830).

“Flies of moderate size, or small, with ovoid or oblong bodies. The males have the eyes approximate or contiguous, and hairy; in the female they are moderately separated, and often only pubescent. The antennæ are short, with a pubescent arista. Facialia unarmed; the cheeks bare, but the mentum, or chin, is hairy or bristly. The abdomen has both discal and marginal setæ. The wings have the fourth longitudinal vein bent in a curve or blunt angle, and the first posterior cell opens near the apex of the wing” (Meade).

Macquartia subtilis, sp. nov.

Male.—Front black, the face pale-yellow. Antennæ piceous; palpi tawny. Thorax dark-brown, with four indistinct longitudinal bands; the sides grey, some long yellow hairs below. Abdomen brown, tessellated on the sides with black and white. Legs black. Squamæ pale-brown. Wings tinged with brown; the fourth longitudinal vein sharply angled at a right angle, and then very gently curved outwards; a short cubital appendix. Length, 9 mm.; wing, 7 mm.

Hab. Wellington (Hudson).

The third joint of the antennæ is barely twice the length of the second; the arista distinctly pubescent. The eyes are hairy and closely approximated, but not touching. The fronto-orbital bristles do not extend beyond the bases of the antennæ; the cheeks are bare, but there is a well-developed beard. The forehead projects moderately. The abdominal segments have both discal and marginal setæ.

Macquartia vexata, sp. nov.

Antennæ dark-brown. Proboscis and palpi brown. Thorax dark-grey, with several indistinct longitudinal black bands; scutellum black. Abdomen dark-brown or black, the three last segments with irregular patches of silvery tomentum. Legs dark-brown. Squamæ brownish. Wings pellucid; the first posterior cell with two brown spots, and the discal cell sometimes with a single spot. Costal cell brownish, paler in the middle; subcostal cell with a brown spot near the end of the auxiliary vein; marginal and submarginal cells brownish; the cross-veins, the fifth longitudinal, and the bend of the fourth longitudinal margined with brown. The fourth longitudinal curves round to an acute angle with its former direction, and then curves rapidly outwards; the first posterior cell is closed, or nearly so.

Male.—Front dark-brown; cheeks brown, with silvery reflections. Eyes hairy, somewhat approximated. Length, 9 mm.; wing, 7 mm.

Female.—Front dark-brown; face grey, with a black oblique band on each side from the eye to the base of the antennæ. Eyes nearly bare, widely separated. Length, 6 mm.; wing, 5 mm.

Hab. Wellington (Hudson).

The third joint of the antennæ is hardly one and a half times the length of the second. The arista is very minutely pubescent. The lower halves of the cheeks are bare, the upper half is hairy. The forehead projects moderately, and the eyes are large. The vibrissæ are distinctly above the front edge of the mouth. The abdomen has discal and marginal setæ. There is no costal bristle, but the male has a few bristles at the junction of the third and second longitudinal veins, and in the female there are a few weak bristles at the base of the third longitudinal. The chief cross-vein is opposite the end of the first longitudinal. The first posterior cell ends near the tip of the wing.

Genus TRYPHERA, Meigen (1838).

Face vertical; eyes generally hairy; antennæ not reaching the epistome; the third joint twice the length of the second; arista bare. Abdomen oval. First posterior cell closed, with a short petiole, reaching nearly the posterior border; a bristle on the costa.

Tryphera sosilus.

Tachina sosilus, Walker, Cat. Dipt. in Brit. Mus., p. 796 (1849). *Melanophora (?) sosilus*, Hutton, Cat. Dipt. N.Z., p. 52.

Body and legs black. Wings white, the veins yellowish. First posterior cell closed, petiolate. Length, 3–4 mm.

I have two specimens, collected many years ago in Otago, which correspond very well to Walker's description, except that the first posterior cell, although closed, is not petiolate. It may be a different species, but it is, I think, sufficiently close to show that *T. sosilus* belongs to this genus, although it is an aberrant form. The costa has a well-marked bristle; the fourth longitudinal vein is bent in a curve, and there is no appendix; the third longitudinal is quite bare. The first posterior cell ends close to the tip of the wing. The eyes are naked. The second joint of the antennæ is not much elongated; and the third joint is also short, reaching about half-way to the epistome. The second joint of the arista is short. The abdomen has macrochætæ, and the cheeks are bare.

Length, 4 mm.; wing, 3 mm.

Genus CALCAGER, gen. nov.

Head rounded between the eyes, which are rather large and bare. A pair of ocellar bristles directed outwards. Palpi well developed. Epistome not very prominent; front wide, usually with two rows of fronto-orbital bristles; facial ridges bare or with slight hairs; vibrissæ above the edge of the mouth. Antennæ reaching rather below the middle of the face; the second joint conical, more or less elongated; the third joint less than twice the length of the second. Second joint of the arista more or less elongated, sometimes as much as one-half the length of the third joint, which is nearly bare. Face considerably shorter at the vibrissæ than at the base of the antennæ. Abdomen oval, with both marginal and discal setæ (macrochætæ). Wings with a strong and easily seen bristle on the costa near the end of the auxiliary vein; third longitudinal generally setigerous at the base; first posterior cell open or closed, and ending before the tip of the wing. Chief cross-vein opposite to or outside of the end of the first longitudinal; length of the fifth longitudinal from the posterior cross-vein to the margin of the wing about one-half of its length from the posterior to the basal cross-vein.

The association of a costal seta with the elongated second joint of the arista, the third joint of which is bare or nearly so, is sufficient to separate this genus from *Echinomyia* and its allies.

KEY TO THE SPECIES.

Wings spotted	..	..	..	..	..	<i>C. apertum.</i>
Wings unspotted.						
Legs brownish-black	..	..	..	..	..	<i>C. turbidum.</i>
Legs testaceous.						
Shoulders brown or grey	..	..	..	..	..	<i>C. temerarium.</i>
Shoulders testaceous	..	..	..	..	..	<i>C. humeratum.</i>

Section A.

First posterior cell open, ending much before the tip of the wing. Facial ridges with a row of fine hairs. Wing with a cubital appendix, and strong bristles on the third longitudinal vein.

Calcager apertum, sp. nov.

Head silvery, the face with a yellowish tinge; a dark-brown frontal band from the ocelli to the bases of the antennæ. Eyes reddish-brown, slightly hairy. Antennæ dark reddish-brown, the first and second joints with some silvery tomentum. Proboscis and palpi dark-brown. Thorax dark-brown, sprinkled with silvery tomentum; four short black lines from the anterior edge. Scutellum dark-brown. Abdomen dark greyish-brown with silvery reflections; the

anterior portion of each segment silvery. Legs dark-brown. Squamæ white. Wings pellucid, brownish at the base, the two cross-veins and the bend of the fourth longitudinal bordered with brown; veins brown. Fourth longitudinal bent sharply forwards at a right angle, and then outwards almost at a right angle; an appendix at the first bend; the first posterior cell distinctly open; posterior cross-vein at right angles. Length, ♀ 9 mm.; wing, ♀ 6 mm.

Hab. Christchurch (F. W. H.). Male unknown.

The third joint of the antennæ is rather longer than the second, straight on the sides, and rounded at the end. Second joint of the arista one-third or one-fourth the length of the third. Facial ridges with a row of weak hairs. Head, thorax, abdomen, and legs with strong black bristles. The second abdominal segment has two pairs of discal setæ; on the third and fourth segments they are irregular. The setæ on the third longitudinal vein are strong, and extend up to or beyond the chief cross-vein.

Calcager turbidum, sp. nov.

Head yellowish-white; eyes reddish-brown, bare. Antennæ reddish-brown, the first and second joints with silvery tomentum. Proboscis and palpi dark-brown. Thorax, scutellum, and abdomen brownish-black, with some white tomentum on the anterior part of each abdominal segment. Legs brownish-black. Squamæ white. Wings pellucid, without spot; the veins dark-brown. The fourth longitudinal is bent sharply at an angle, which is slightly obtuse, from whence it is nearly straight; an appendix at the bend; first posterior cell distinctly open; posterior cross-vein oblique, parallel to the bend of the fourth longitudinal. Length, ♂ 6–7 mm., ♀ 7–8 mm.; wing, ♂ 5 mm., ♀ 5½ mm.

Hab. Christchurch (F. W. H.).

The third joint of the antennæ is about as long as the second, slightly concave in front and convex behind. Second joint of the arista between one-half and one-third of the third. Facial ridges with a row of weak hairs. In the male all the abdominal segments after the first have a row of marginal setæ, but in the female there are only two on the middle of the posterior margin of the second segment. The setæ on the third longitudinal vein are strong, and extend beyond the chief cross-vein.

Section B.

First posterior cell closed, ending rather before the tip of the wing. Facial ridges bare. Setæ on third longitudinal vein weak. No cubital appendix.

Calcager temerarium, sp. nov.

Head greyish-white, with a central band of dark-brown on the front, which is sometimes covered with white tomentum. Face and epistome tawny, with scattered white tomentum. Antennæ reddish-brown, the first and second joints with pale tomentum. Proboscis brown, palpi pale-tawny. Thorax greyish-brown, with four interrupted dark-brown stripes, the inner pair narrower than the outer. Scutellum greyish-brown. Abdomen greyish-brown, without spots. Legs testaceous, the tarsi black. Squamæ brownish-white. Wings spotless, the larger veins tawny. The fourth longitudinal is bent in a curve nearly to a right angle and meets the third at the tip. The posterior cross-vein is at right angles to the longitudinal, and is distinctly sinuated. Length, 7 mm.; wing, 5 mm.

Hab. Christchurch (F. W. H.).

The third joint of the antennæ is nearly one and a half times the length of the second; its anterior margin is concave and its posterior margin convex. The second joint of the arista is about one-third of the third joint. The facial ridges are bare. The eyes have a few hairs. The setæ on the third longitudinal are few, and placed at its junction with the second longitudinal. The costal seta is well marked. The second and third abdominal segments have one pair of discal setæ.

Calcager humeratum, sp. nov.

Head tawny, passing into brown on the front. First and second joints of the antennæ reddish-brown, the third almost black; palpi tawny. Eyes rather small, dark-brown, bare. Thorax blackish-brown, the shoulders and a band on each side, above the wing, tawny; apex of the scutellum tawny. Abdomen black, tessellated with grey tomentum. Legs tawny, the tarsi black. Squamæ and wings pale-brown, the veins dark-brown. Bend of the fourth longitudinal obtuse; posterior cross-vein at right angles to the longitudinals, but much sinuated. Bristles on the body and legs weak; very few on the abdomen. Length, 8 mm.; wing, 7 mm.

Hab. Wellington (Hudson).

The front is prominent and longitudinally grooved; the eyes are rather small, and the face projecting. The second joint of the antennæ is not much elongated, while the third is nearly twice as long. The second joint of the arista also is rather short, being about one-seventh of the length of the third joint. It connects *Calcager* with *Proscissio*.

Genus **NEMORÆA**, R. Desvoidy (1830).

Large. Eyes hairy, more or less approximated in the male, always much shorter than the sides of the head; fore-

head prominent; antennæ drooping, with the second joint elongated, often nearly as long as the third. Facial ridges bare; cheeks sometimes clothed with soft hairs; chin large, extending far below the eyes, and setose. Abdomen oval, middle segments with or without discal setæ. Fore tarsi more or less dilated in the females. First posterior cell ending some distance before the tip of the wing.

Nemoræa mestor.

Tachina mestor, Walker, Cat. Dipt. in Brit. Mus., p. 741 (1849). *Miltogramma mestor*, Hutton, Cat. Dipt. N.Z., p. 51; Hudson, Man. N.Z. Ent., p. 59, pl. vii., fig. 5.

Front black, ferruginous near the antennæ; face ferruginous. The antennæ ferruginous, the third joint with darker reflections. Thorax nearly black, the sides ferruginous; scutellum testaceous. Abdomen oval, testaceous, the first and second segments black; the third and fourth with a black dorsal band, which widens posteriorly on each segment; fifth segment with a triangular black mark which does not reach the posterior margin of the segment. No discal setæ on the middle segments. Legs testaceous. Wings tinged greyish, the veins tawny. Length, 12 mm.; wing, 11 mm.

Hab. Auckland (Dr. Sinclair); Wellington (Hudson).

This species is a true *Nemoræa*, and is closely related to *N. rubrica*, of Europe. Walker's statement that the abdomen is narrow and nearly cylindrical must be a mistake, as the rest of his description corresponds very well with two specimens from Wellington, provided we interpret "interrupted black stripe" to mean that it does not reach the apex of the abdomen.

Genus **HYSTRICIA**, Macquart (1843).

Front moderately broad; the epistome salient. Antennæ not reaching the epistome; the second joint rather elongated, the third usually double the second; straight before and behind; arista minutely pubescent, the second joint elongated. Eyes large, hairy. Abdomen broader than the thorax, provided with strong bristles. First posterior cell slightly open, ending much before the tip of the wing.

Hystricia lupina.

Musca lupina, Swederus, Nya Handl., viii., p. 289 (1787).

Tachina zelica, Walker, Cat. Dipt. in Brit. Mus., p. 711 (1849). *Hystricia zelica*, Hutton, Cat. Dipt. N.Z., p. 46.

Abdomen bright-tawny, the hind border of each segment black. Length, 18 mm.; wing, 16 mm.

Hab. Auckland (Dr. Sinclair and Captain Broun); Great Barrier Island (H. Suter).

In my specimens the third joint of the antennæ is concave in front, and there are no discal setæ on the middle segments of the abdomen.

Hystricia pachyprocta.

H. pachyprocta, Nowicki, Mem. Krakauer Akad. Wissen., 1875, p. 25; Hutton, Cat. Dipt. N.Z., p. 47. *Tabanus impar*, Hudson, Man. N.Z. Ent., p. 54, pl. vi., fig. 6.

Abdomen bright-tawny, with a black longitudinal band which widens posteriorly, so that the last segment is altogether black. Length, 11–16 mm.; wing, 10–13 mm.

Hab. Wellington (Hudson); Canterbury and Otago (F. W. H.).

The middle abdominal segments have both discal and marginal setæ.

Genus *Occisor*, gen. nov.

Head rather produced in front, rather shorter at the vibrissæ than at the base of the antennæ. Eyes hairy, widely separated in both sexes, but rather nearer in the male. Fronto-orbital bristles hardly extending below the bases of the antennæ; cheeks with hairs, but no macrochætæ; facial ridges bare; vibrissæ distinctly above the anterior edge of the mouth. Second joint of the antennæ conical, various in length; third joint from two to four times the length of the second; second joint of the arista about twice as long as broad; third joint bare, not much swollen at the base. Abdomen oblong, with marginal but no discal setæ on the middle segments. The first posterior cell is open, and ends considerably before the tip of the wing; the posterior cross-vein is nearer to the margin of the wing than to the chief cross-vein; the length of the last section of the fifth longitudinal vein is less than one-fourth of the length of the preceding section.

This genus differs from *Brachycoma* in the third joint of the antennæ being longer, and in the abdomen being without spots.

Occisor inscitus, sp. nov.

Front smooth, black, the sides and face yellowish-white. Second joint of the antennæ elongated, rather less than one-half of the length of the second joint; the first and third joints piceous. Proboscis black, the palpi tawny. Thorax and scutellum black, a red spot at the base of the wings. Abdomen dark-blue. Legs black, the knees testaceous. Wings pellucid; the last section of the fifth longitudinal vein between one-fourth and one-fifth the length of the preceding section. Length, 10–11 mm.; wing, 7–9 mm.

Hab. Christchurch (F. W. H.).

The eyes are thinly covered with hairs. The second abdominal segment has a pair of marginal setæ in the middle and one on each side; the third segment has a complete row on the posterior margin.

***Occisor versutus*, sp. nov.**

Front smooth, piceous; the face brown. Third joint of the antennæ about four times the length of the second, tawny at the base, the rest piceous. Palpi and epistome tawny, the proboscis piceous. Thorax and scutellum black, a red spot at the base of the wings. Abdomen bluish-black. Legs black, the knees testaceous. Wings pellucid; the last section of the fifth longitudinal vein less than one-sixth of the length of the preceding section. Length, 10 mm.; wing, 8 mm.

Hab. Christchurch (F. W. H.).

The eyes are distinctly hairy, more so than in the last species. The second abdominal segment has a pair of marginal setæ in the middle and a pair on each side; the third segment has a complete row of marginal setæ.

Genus *TACHINA*, Meigen (1803).

“Eyes bare or finely pubescent, rather widely separated in both sexes, but nearer together in the males than in the females. Forehead usually not very prominent; facial angle almost straight. Antennæ nearly drooping, with the second joint elongated, half, or rather more than half, as long as the third joint; arista bare, and usually thickened for half its length. Facial ridges bare, or only ciliated along their lower halves with short fine bristles; cheeks bare; fronto-orbital setæ usually extending half-way down the face. Abdomen mostly conico-elliptical in the male, ovoid in the female, and either with or without discal setæ on the middle segments. Wings with the fourth longitudinal vein usually bent at a sharp angle, and often furnished with a spurious, or nearly spurious, cubital appendix” (Meade).

***Tachina clarkii*, sp. nov.**

Male.—Front dark reddish-brown, with a little silvery tomentum on each side bordering the eyes; cheeks yellow; lower face brown. First and second joints of the antennæ dark-brown, the third orange. Thorax with grey tomentum and four indistinct black bands; scutellum greyish-black. Abdomen dark-blue, metallic. Femora and tarsi black; the tibiæ dark-brown, the knees tawny. Squamæ white. Wings with a red spot at the base; veins dark-brown, margined with brown. Length, 12 mm.; wing, 10 mm.

Hab. Christchurch (H. Clark).

The eyes are approaching and bare. The forehead is

prominent; the cheeks bristly in the upper half; the fronto-orbital setæ do not extend much below the base of the antennæ. The second joint of the antennæ is not much elongated; the third is about one and a half times the length of the second, and reaches rather more than halfway to the epistome. The abdomen is ovate, and has no macrochètæ on the middle segments. The first posterior cell is open, and ends before the tip of the wing; the fourth longitudinal vein curves sharply round to an acute angle with its former direction, and then curves outwards more gently; the last section of the fifth longitudinal is between one-fourth and one-fifth the length of the previous section.

I place this species with great doubt in *Tachina*.

Genus PROSCISSIO, gen. nov.

Head much produced and wedge-shaped in front, the frontal band deeply grooved; but the head is not much longer at the base of the antennæ than at the vibrissæ. Eyes small, about half the length of the head, bare or nearly so. Antennæ rather short, but reaching more than halfway to the epistome; the third nearly three times the length of the second. Second joint of the arista longer than broad; the third joint minutely pubescent. Frontal bristles in a single row in both sexes, not descending below the bases of the antennæ. Cheeks and facial ridges bare; vibrissæ only slightly above the anterior edge of the mouth. Proboscis and palpi long. Abdomen oblong, the middle segments with a pair of discal setæ. Wings without any conspicuous seta on the costa, but sometimes one of the short bristles near the end of the auxiliary vein is rather longer than the others; fourth longitudinal vein usually bent sharply at a right angle and then curved gently outwards; the first posterior cell is open, and ends a little before the tip of the wing; the posterior cross-vein is nearer to the margin than to the chief cross-vein; and the last section of the fifth longitudinal is about one-fifth of the length of the preceding section.

The small eyes and prominent forehead are sufficient to distinguish this genus from *Tachina*.

KEY TO THE SPECIES.

Second joint of the antennæ pale-brown .. ..	..	..	<i>P. modica.</i>
Second joint of the antennæ dark-brown.			
Knees black.			
Thorax with white tomentum .. ..	..	..	<i>P. cana.</i>
Thorax with yellow tomentum .. ..	..	..	<i>P. valida.</i>
Knees tawny .. ..	..	..	<i>P. montana.</i>

Proscissio cana, sp. nov.

Head brown, with grey tomentum on the face. Antennæ dark reddish-brown, the third joint with grey tomentum.

Proboscis and palpi dark-brown. Thorax with silvery tomentum and four black longitudinal bands; the scutellum grey. Abdomen grey, tessellated with black and white. Legs black, the femora with greyish tomentum. Squamæ white. Wings pellucid, slightly tinged with brown at the base; veins dark-brown; fourth longitudinal vein sharply bent at a right angle and then curved gently outwards; a cubital appendix present or absent. Length, 11 mm.; wing, 8 mm.

Hab. Wellington (Hudson); Christchurch (F. W. H.).

***Proscissio modica*, sp. nov.**

Face brown, covered with pale-yellow tomentum, the frontal band dark-brown. Second joint of the antennæ pale-brown, the first and third dark-brown. Proboscis dark-brown; the palpi tawny. Thorax greyish-black, with four indistinct black longitudinal bands, the sides with grey tomentum; scutellum brown, black at the base. Abdomen blackish-brown, tessellated with silvery tomentum. Legs blackish-brown, the femora with greyish tomentum. Squamæ brownish-white. Wings pellucid, brownish at the base; the veins brown. Fourth longitudinal vein curved round to an acute angle with its former direction, and then curved outwards. A short cubital appendix present or absent. Length, 11 mm.; wing, 8 mm.

Hab. Wellington (G. V. Hudson).

***Proscissio valida*, sp. nov.**

Head brown, with pale-yellow tomentum on the face. Antennæ, proboscis, and palpi dark-brown. Thorax with pale-yellow tomentum and four dark longitudinal bands; the scutellum yellowish-grey. Abdomen blackish-brown, tessellated on the sides with black and white tomentum. Legs blackish-brown. Squamæ white. Wings pellucid, brownish at the base; the veins brown; fourth longitudinal curved sharply round to a right angle with its former direction, and then curved more gently outwards. No cubital appendix. Length, 15 mm.; wing, 11 mm.

Hab. Taranaki (Clark).

***Proscissio montana*, sp. nov.**

Head brown, with pale-yellow tomentum on the face. Antennæ, proboscis, and palpi dark-brown. Thorax with pale-yellow tomentum and four dark longitudinal bands; scutellum yellowish-grey, with irregular dark markings. Abdomen black, with white tomentum on the anterior portion of each segment. Legs blackish-brown, the knees tawny. Squamæ brownish-white. Wings pellucid, brownish near the base; the veins brown. Fourth longitudinal bent sharply at a right

angle and then curved gently outwards. Length, 13 mm.; wing, 12 mm.

Hab. Mount Peel, Nelson, 5,000 ft. (G. V. Hudson).

Genus PEREMPTOR, gen. nov.

Head much produced and grooved in front, and longer at the base of the antennæ than at the vibrissæ. Eyes bare, widely separated, small, about half the length of the head. Fronto-orbital bristles stopping at the bases of the antennæ. Cheeks and facial ridges bare; vibrissæ considerably above the level of the mouth. Antennæ very short, the third joint not much longer than the second; second joint of the arista quite short, the third minutely pubescent. Proboscis and palpi long. Abdomen oval, the middle segments without discal setæ. First posterior cell open, and ends rather before the tip of the wing; the posterior cross-vein is nearer to the margin than to the chief cross-vein; the length of the last section of the fifth posterior vein is less than a sixth of the length of the preceding section.

This genus differs from *Miltogramma* in the head not being swollen, the facial ridges not being thickened, the antennæ being exposed, the vibrissæ being well developed, as well as by the shape of the abdomen, and the small eyes.

Peremptor pavida, sp. nov.

Head brown, with yellowish-white tomentum on the face. First and second joints of the antennæ tawny; the third dark-brown, with a little silvery tomentum. Proboscis brown, palpi pale-tawny. Thorax grey, with four indistinct dark bands; scutellum brown. Abdomen black, with white tomentum on the anterior portions of the segments. Legs tawny, the tarsi black. Squamæ white. Wings slightly tinged with brown, the veins pale-brown. Fourth longitudinal curved round to right angles with its former direction, and then gently curved outwards; no cubital appendix. Length, 11 mm.; wing, 9½ mm.

Hab. Ashburton (W. W. Smith).

Peremptor egmonti, sp. nov.

Head brown, with pale-yellow tomentum on the face. Antennæ dark reddish-brown, the third joint with silvery tomentum. Thorax with grey tomentum above, yellowish on the sides; no longitudinal bands; scutellum grey. Abdomen brown, with pale-yellow and grey tessellations. Legs black. Squamæ white. Wings pellucid, the cross-veins margined with brown; veins dark-brown. The fourth longitudinal bent sharply at an acute angle and then very gently curved

outwards; a cubital appendix. Length, $12\frac{1}{2}$ mm.; wing, $10\frac{1}{2}$ mm.

Hab. Mount Egmont, Taranaki (Captain Broun).

Genus CEROSOMYIA, gen. nov.

Vertex produced forwards and upwards into a blunt hollow process, which forms a hood over the bases of the antennæ, completely hiding their first and second joints, and sending downwards, on each side, a ridge which runs outside the facial ridges. These genal ridges are bare, but the facial ridges inside them are armed with setæ throughout their whole length. Antennæ long, reaching the epistome, lodged in a deep facial groove; the second joint short, the third more than four times its length; arista minutely pubescent, the second joint short. Eyes bare, or nearly so. Front broad, slightly grooved in the middle, with several rows of bristles on each side, of which the inner row is longer than the others. Cheeks bare. Vibrissæ just above the upper edge of the mouth. Face shorter at the mouth than at the bases of the antennæ. Wings without any conspicuous costal bristle. First posterior cell open, and ending before the tip of the wing; last section of the fifth longitudinal vein about one-fourth the length of the previous section; the chief cross-vein lies inside the end of the first longitudinal. Abdomen with discal and marginal setæ.

A remarkable genus, easily recognised by the frontal process.

Cerosomyia usitata, sp. nov.

Front dark-brown, with some grey tomentum; frontal projection blackish-brown; cheeks reddish-brown, the lower face with silvery tomentum. Proboscis and palpi brown. Thorax dark-brown, the scutellum tawny. Abdomen dark-brown, tessellated on the sides with black and white. Legs black. Squamæ white. Wings pellucid, the veins brown. Fourth longitudinal bent at an obtuse angle, the bent portion nearly straight; posterior cross-vein slightly sinuated. Length, 10 mm.; wing, $6\frac{1}{2}$ mm.

Hab. Christchurch (F. W. H.).

A single specimen.

Genus PHOROCERA, R. Desvoidy (1830).

Ocellar bristles pointing forwards; cheeks bare; facial ridges armed with bristles throughout the greater part of their length; vibrissæ on a level with the front edge of the mouth. Eyes hairy. First posterior cell ending at some distance in front of the tip of the wing; the last section of the fifth longitudinal vein less than one-third of the preceding vein. In

the New Zealand species here included the third joint of the antennæ is nearly four times the length of the second. The first posterior cell is generally open, but sometimes closed; never petiolate. Most have discal as well as marginal setæ on the abdomen. The individuals of a species vary much in size.

KEY TO THE SPECIES.

Scutellum blue margined with testaceous.				
Abdomen blue	..	..	..	<i>P. marginata.</i>
Abdomen greenish-black	..	..	..	<i>P. atrox.</i>
Scutellum blue	..	..	..	<i>P. nefaria.</i>
Scutellum testaceous or fulvous.				
First abdominal segment brown, the others blue..				<i>P. feredayi.</i>
Abdomen blue or bluish-black.				
Thorax blue or black.				
Second, third, and fourth abdominal segments with red spots	..	..		<i>P. clathrata.</i>
Third and fourth abdominal segments without spots	..	..		<i>P. nyctemeriana.</i>
Thorax greenish-black	..	..		<i>P. perniciosa.</i>
Abdomen greenish-black	..	..		<i>P. atrox.</i>
Abdomen brown, not tessellated	..	..		<i>P. orasus.</i>
Abdomen brown, tessellated on the sides	..	..		<i>P. efferata.</i>
Scutellum black	..	..	..	<i>P. funerata.</i>

Phorocera feredayi.

Eurigaster feredayi, Hutton, Cat. Dipt. N.Z., p. 50 (1881).

Vertex dark-brown, lower face grey, epistome yellow; antennæ, proboscis, and palpi brown. Thorax dark-brown; scutellum and posterior corners of mesonotum light-brown. First segment of the abdomen brown, the three last metallic-blue. Legs brown. Length, 7 mm.

Hab. Dunedin (F. W. H.).

I have no specimens of this species, so that I cannot add to the description.

Phorocera clathrata.

Eurigaster clathratus, Nowicki, Mem. Krakauer Akad. Wissen., band 2, ged. Auf., p. 27 (1875); Hutton, Cat. Dipt. N.Z., p. 51.

Black, the second, third, and fourth segments of the abdomen with a large red spot on each side, the anterior portions of the segments tessellated with white. Palpi tawny. Length, 10 mm.; wing, 9 mm.

I do not know this species.

Phorocera nyctemeriana.

Nemoræa nyctemerianus, Hudson, Trans. N.Z. Inst., vol. xv., p. 218 (1883); and Man. N.Z. Ent., p. 59, pl. vii., fig. 6.

Vertex grey, the frontal band black; lower face silvery; antennæ and proboscis black. Thorax black; scutellum tes-

taceous. Abdomen bluish-black, a testaceous spot generally present on each side of the second segment. Femora and tarsi black, the tibiæ brown. Length, 10 mm.; wing, 9 mm.

Hab. Wellington, (Hudson); Christchurch and Queenstown (F. W. H.).

The first posterior cell is distinctly open, and the abdominal segments have discal as well as marginal setæ.

The type has no testaceous spots on the abdomen, but there are so many intermediate varieties between large spots and none that I include them in a single species.

Phorocera marginata.

Eurigaster marginatus, Hutton, Cat. Dipt. N.Z., p. 51 (1881); Hudson, Man. N.Z. Ent., p. 60, pl. vii., fig. 7.

Vertex dark-grey, the frontal band dark-brown; face and cheeks with silvery reflections; antennæ, proboscis, and palpi piceous; epistome testaceous. Thorax dark-blue; scutellum margined with testaceous; a tawny spot at the base of the wings. Abdomen blue. Legs black. Length, 6–10 mm.; wing, 6–7 mm.

Hab. Wellington (Hudson); Christchurch and Dunedin (F. W. H.).

The first posterior cell is narrowly open. The abdomen has discal as well as marginal setæ. The statement in my original description that the intermediate and hind tibiæ are rufous in the middle is a mistake. Sometimes the thorax has greenish-blue reflections.

Phorocera nefaria, sp. nov.

Vertex bluish-grey, the frontal band black; antennæ, proboscis, and palpi piceous. Thorax, scutellum, and abdomen blue. A red spot at the base of the wings. Legs black. Length, 8–10 mm.; wing, 7–9 mm.

Hab. Christchurch (F. W. H.).

The first posterior cell is open. In the large specimens—which I take to be the females—there is only one pair of discal setæ on the fourth segment, but in the small specimens the discal setæ are more numerous.

Phorocera efferata, sp. nov.

Vertex grey; frontal band reddish-brown; cheeks yellowish-brown; face white; epistome tawny. Antennæ, proboscis, and palpi piceous. Thorax black; scutellum testaceous or fulvous. Abdomen brown, tessellated on each side with black and white. Legs black, the tibiæ dark-brown. Length, 7–10 mm.; wing, 5–7 mm.

Hab. Christchurch and Wellington (F. W. H.).

The first posterior cell is closed. The larger specimens—which I suppose to be the females—have no discal setæ on the middle segments, while the smaller specimens have well-developed setæ.

Phorocera orasus.

Tachina orasus, Walker, Cat. Dipt. in Brit. Mus., p. 741 (1849). *Nemoræa orasus*, Hutton, Cat. Dipt. N.Z., p. 49.

Vertex dark-grey, the frontal band reddish-brown, grooved. Face yellowish-white, with a dark reddish-brown spot on each side. Second joint of the antennæ and palpi tawny; the rest, as well as the proboscis, piceous. Thorax black; scutellum dark-fulvous. Abdomen dark-brown, not tessellated. Legs black, the tibiæ brown. Wings brown near the base. Length, 8 mm.; wing, 6 mm.

Hab. Auckland (Dr. Sinclair); Christchurch (F. W. H.); Ashburton (W. W. Smith).

The first posterior cell is open. There are no discal setæ on the middle segments of the abdomen.

The South Island specimens may be distinct from those from Auckland, but, as I have none from the latter place for comparison, I keep them together for the present.

Phorocera atrox, sp. nov.

Head and cheeks brown; the face white. Antennæ, proboscis, and palpi piceous. Thorax and abdomen greenish-black; the scutellum fulvous, or margined with fulvous. Legs black. Length, 10 mm.; wing, 8 mm.

Hab. Napier (F. W. H.).

The green colour of this species distinguishes it from any of the others. The first posterior cell is open.

Phorocera funesta, sp. nov.

Vertex black, face grey. Antennæ, proboscis, and palpi piceous. Thorax, scutellum, abdomen, and legs black. Length, 6-7 mm.; wing, 5 mm.

Hab. Christchurch (F. W. H.).

The first posterior cell is open. Some specimens have no discal setæ on the middle abdominal segments, while in others they are well developed. Perhaps this is a sexual difference.

Phorocera perniciosa, sp. nov.

Vertex grey, the frontal band dark-brown; lower face white. Antennæ, proboscis, and palpi piceous. Thorax black, with green reflections; scutellum fulvous. Abdomen black, with greenish-blue reflections. Legs black, the tibiæ dark-brown. Length, 11 mm.; wing, 9 mm.

Hab. Christchurch (Clark).

In this species the fronto-orbital bristles descend lower than in the others, reaching to about the middle of the face. The first posterior cell is open.

Genus GYMNOPHANIA, Brauer and Bergenstamm (1889).

Lower part of the cheeks with strong bristles. Proboscis not much longer than the height of the head, the palpi well developed. Abdomen shining, without any tomentum, and without macrochaetae. First posterior cell of the wing ending near the tip.

Gymnophania pernix, sp. nov.

Entirely black, the eyes dull-red. Squamæ dark in the centre. Scutellum with a marginal row of long hairs. Length, 7 mm.; wing, 6 mm.

Hab. Christchurch (Clark); Lincoln (Hilgendorf).

The first posterior cell is closed, but not petiolate; the posterior cross-vein is nearer to the margin than to the chief cross-vein; the third longitudinal is bare; the fourth longitudinal curves forwards at an obtuse angle; the last section of the fifth longitudinal is about one-sixth of the length of the preceding section. The front is shining-black; the eyes are bare, and the facial ridges unarmed; the vibrissæ are about on a level with the anterior edge of the mouth.

Genus PHANIA, Meigen (1824).

Third joint of the antennæ compressed, longer than the second. Abdomen rather elongated; the male organ long, bent under the body. First posterior cell open.

Phania verecunda, sp. nov.

Hudson, Man. N.Z. Ent., pl. vii., fig. 11. (Not named.)

Vertex velvety-black, face silvery. Antennæ, proboscis, and palpi piceous. Thorax and scutellum black. First three segments of the abdomen orange, the others black. Legs black. Squamæ and wings pale-orange, the latter darker towards the base; veins orange. Length, 7 mm.; wing, 6 mm.

Hab. Wellington (Hudson); Christchurch (Clark).

The eyes are bare and approximated, but not touching, in the male. The third joint of the antennæ is about twice the length of the second. The arista is bare. There is a pair of long setæ on the vertex, but no fronto-orbital bristles. The thorax has a few scattered bristles, and there is a marginal row on the scutellum; the abdomen has very few, and no

hairs. The fourth longitudinal vein curves at an obtuse angle, and the first posterior cell is rather widely open; the posterior cross-vein is straight.

Family SARCOPHAGIDÆ.

“Arista plumose or hairy, with the apex bare. First posterior cell only slightly opened, or closed. Squamæ large; legs stout” (Loew).

The eyes are distant in both sexes.

Genus SARCOPHAGA, Meigen (1826).

Third joint of the antennæ usually three times the length of the second; arista plumose or tomentose. Abdomen of the male subfusiform, tumid at the apex; subovate in the female. First posterior cell open.

Sarcophaga impatiens.

Sarcophaga impatiens, Walker, Cat. Dipt. in Brit. Mus., p. 828 (1849).

Frontal band and antennæ black, face golden; proboscis and palpi black. Thorax black, with a pair of longitudinal bands which are white in some lights and yellow in others; sides with a broader pale band of the same character. Scutellum black, the sides pale. Abdomen blackish-brown, tessellated with greyish reflection on the sides, arranged in two rows of spots on each side. Legs black. Wings pellucid, tawny at the base; veins piceous; fourth longitudinal sharply bent at a right angle and arched; posterior cross-vein nearly straight. Length, 8–9 mm.

Hab. Whangarei (F. W. H.), very abundant; Banks Peninsula (Hilgendorf), a single specimen; Christchurch, Feb., 1901 (F. W. H.). Probably introduced from Australia, where it is also found, as it was not sent to England by the early collectors.

The first posterior cell is open; the posterior cross-vein is nearly in a line with the upper part of the bend of the fourth longitudinal; and the first longitudinal vein is not bristly. Abdomen without discal setæ, and with marginals on the last segment only. There is a pair of large orbital setæ in each sex.

Family MUSCIDÆ.

“Arista entirely plumose or pectinated. Body never slender; thorax short. First posterior cell only slightly opened, or else closed at the border of the wing. Squamæ large. Legs stout” (Loew).

The abdomen has no macrochætæ.

KEY TO THE GENERA.

Proboscis short and stout, arista plumose.

First posterior cell narrowly open, or closed.

Fourth longitudinal sharply bent, nearly at a right angle.

Thorax metallic *Lucilia*.
 Thorax not metallic *Calliphora*.

Fourth longitudinal gradually curved.

Middle tibiæ with one or two bristles on the inner side *Sepimentum*.

Middle tibiæ without bristles on the inner side *Musca*.

First posterior cell widely open *Muscina*.

Proboscis long and slender; arista pectinated *Stomoxys*.

Genus LUCILIA, R. Desvoidy (1830).

“Head depressed. Epistome not salient. Antennæ reaching the epistome; the third joint four times as long as the second; arista plumose. Abdomen generally short, rounded. Wings open; first posterior cell reaching the border a little in front of the apex; fourth longitudinal vein more or less arched and concave after the bend” (Macquart).

Lucilia cæsar.

Musca cæsar, Linnæus, Syst. Nat., ii., 989 (1761).

Bright bluish-green or golden-green. Head with silvery-white tomentum; vertex black, face reddish, epistome testaceous; palpi tawny; antennæ black. Legs black; femora bluish. Length, 5–9 mm.

Hab. Throughout New Zealand. Introduced.

The facial ridges are armed with bristles for one-third of the length. This fly was not to be found in Auckland, Wellington, or Dunedin in 1874. In 1872 I observed it at Christchurch, but it had not arrived at Dunedin in December, 1879. It is now common from Whangarei to Queenstown.

Genus CALLIPHORA, R. Desvoidy (1830).

“Facial ridges bordered with hairs; epistome a little projecting; antennæ nearly reaching the epistome, the third joint four times as long as the second; arista plumose. Abdomen short. First posterior cell reaching the border of the wing a little before the extremity; fourth longitudinal vein generally strongly arched after the bend” (Macquart).

The eyes are contiguous or subcontiguous in the male. The fourth longitudinal vein bends at a right angle to its former direction.

KEY TO THE SPECIES.

Abdomen metallic-blue.			
Abdomen with silvery reflections on the sides ..			<i>C. erythrocephala.</i>
Abdomen without silvery reflections.			
Eyes hairy.			
Palpi fulvous			<i>C. quadrimaculata.</i>
Palpi black			<i>C. hortonæ.</i>
Eyes bare.			
Third joint of antennæ black ..			<i>C. icela.</i>
Third joint of antennæ orange ..			<i>C. antennatis.</i>
Abdomen fulvous, with golden reflections..			<i>C. læmica.</i>

Calliphora erythrocephala.

Musca erythrocephala, Meigen, Zw., v., 62, 2 (1826). *M. vomitoria*, Hudson, Trans. N.Z. Inst., vol xxii., p. 187.

Eyes bare; vertex black, face and epistome reddish-brown; antennæ piceous, red at the tip of the second and base of the third joints. Chin with black hairs. Thorax with four black stripes. Abdomen blue, with shining white tomentum forming large spots on each side. Length, 9–11 mm.; wing, 7–9 mm.

Hab. Throughout New Zealand. Introduced.

This insect was first noticed in New Zealand by Mr. G. V. Hudson in June, 1889, at Wellington. In Christchurch I observed it first in the summer of 1893–94. It is now abundant from Dunedin to Whangarei.

Up to the present time the introduction of this species does not appear to have affected to any appreciable extent the two native species (*C. quadrimaculata* and *C. icela*), with which, no doubt, it competes. All three are equally common.

Calliphora quadrimaculata.

Musca quadrimaculata, Swederus, Nya Handling, viii., p. 289, No. 49 (1787). *Call. dasyophthalma*, Macquart, Dipt. Exot., part v., p. 287, pl. 16, fig. 2 (1843). *Musca violacea*, Walker, Insecta Saundersiana, Dipt., p. 335 (1856), not of Macquart. *C. quadrimaculata*, Hudson, Man. N.Z. Ent., p. 60, pl. vii., fig. 9.

Head piceous, a fulvous spot on each cheek between the base of the antennæ and the eye, below which is a narrow pale band. Antennæ piceous, the second joint fulvous at the tip, and the third joint whitish at the base. Eyes hairy. Palpi fulvous. Thorax with an oval orange spot on each side in front, and a smaller one at the base of the wing. Abdomen brilliant violet-blue; legs black. Wings with a golden spot at the base. Length, 12–13 mm.

Hab. Throughout New Zealand, and in the Auckland Islands.

The eyes in the male are contiguous.

Calliphora hortona.

Musca hortona, Walker, Cat. Dipt. in Brit. Mus., p. 894 (1849). *Pollenia aureonotata*, Macquart, Dipt. Exot., Supp. 5, p. 135 (1854).

Head and antennæ piceous, a reddish or fulvous patch at the base of the antennæ. Eyes hairy. Palpi and proboscis piceous. Thorax with a pyriform yellowish fulvous spot on each side in front. Abdomen brilliant violet-blue. Wings with a fulvous spot at the base. Length, 9–10 mm.

Hab. Wellington and Christchurch (F. W. H.); on the sea-beach.

In this species the antennæ are short, not reaching the epistome, the third joint being only about twice the length of the second. Also, the hairs on the arista are not so long as usual in the genus. I have a specimen in which they are developed only on the upper side, as in *Idia*. Also, the fourth longitudinal vein is very slightly arched after the bend.

Calliphora icela.

Musca icela, Walker, Cat. Dipt. in Brit. Mus., p. 897 (1849).

Call. aureopunctata, Macquart, Dipt. Exot., Supp. 5, p. 130 (1854).

Vertex blackish-brown, cheeks yellowish-white in the male, passing into tawny on lower face and abdomen. In the female there is on each upper cheek, from the upper facial ridge to the eyes, a reddish-brown patch, margined above and below with yellowish-white, and the lower face is brown. Antennæ piceous, the second joint reddish. The eyes are bare, and only approximate in the male. The palpi orange or fulvous. The thorax has an oval fulvous or orange spot on each side in front. Abdomen brilliant blue, sometimes with faint-green reflections. Wings with a fulvous spot at the base. Length, 7–9 mm.

Hab. Throughout New Zealand.

Calliphora antennatis.

Calliphora antennatis, Hutton, Cat. Dipt. N.Z., p. 60 (1881).

Vertex blackish-brown, with some grey reflections in the female. In the male the eyes are subcontiguous, and the face is brown, with two silvery transverse bands from the eyes to the facial ridges. In the female the face is brown, with a large orange or fulvous spot between the eyes and the upper facial ridges. The eyes are bare. Third joint of the antennæ and the palpi orange or fulvous. Thorax with a round fulvous or orange spot just in front of the insertion of the wings. Abdomen brilliant violet-blue. Legs black, the knees tawny. Wings rather smoky, no spot at the base. Length, 10 mm.

Hab. Dunedin and Christchurch (F. W. H.). Rare.

The fourth longitudinal vein is strongly arched after the bend. The antennæ are rather short, the third joint being not more than twice the length of the second. The hairs on the arista are also short.

Calliphora læmica.

Musca læmica, White, in Dieffenbach's "New Zealand," vol. ii., p. 291 (1843); Voy. "Erebus" and "Terror," Insects, pl. 7, fig. 18; Walker, Cat. Dipt. in Brit. Mus., p. 906 (1849). *Sarcophaga læmica*, Hudson, Man. N.Z. Ent., p. 61, pl. vii., fig. 10.

Vertex dark-brown; cheeks yellowish-white, with brown marks; lower face tawny, with golden hairs. First and second joints of the antennæ ferruginous; the third piceous, four times as long as the second. Eyes bare, contiguous in the male. Thorax dark-grey, with black longitudinal bands above, fulvous below. Abdomen fulvous, with bronzy reflections, with yellow hairs on the sides and below. Legs tawny or ferruginous, the tarsi darker. Length, 7–12 mm.

Hab. Throughout New Zealand. Probably introduced from Australia, where it is also found, as well as in Polynesia.

This species has been abundant in the North Island for a long time, and it extended as far south as Christchurch in 1874, but it was not common. I never found it in Otago up to 1879, when I was living there, but this year (1900) I saw it at Queenstown. It thus appears to have come down from the North. Walker considered it to belong to *Pollenia*, to which genus it should, perhaps, be referred.

Genus SEPIMENTUM, gen. nov.

Eyes bare, subcontiguous in the male, a pair of orbital bristles on each side in the female. Antennæ rather short, not reaching the epistome; third joint about three times the length of the second; arista plumose on both sides, the tip sometimes bare, especially in the female. Outer and lower cheeks hairy. Facial ridges with some hairs on the lower fourth. Epistome slightly projecting. Thorax with six rows of dorso-central bristles. Abdomen without either discal or marginal macrochètæ. Tibiæ with one or two bristles on the inner side. Fourth longitudinal vein curving round at an obtuse angle and then straight; first posterior cell generally closed, sometimes shortly petiolate, sometimes very narrowly open. Posterior cross-vein sinuated.

This genus differs from *Pollenia* in the thorax and abdomen not being thickly set with short hairs, and from *Calliphora* by the direction of the fourth longitudinal vein, as well as by the closed apical cell.

Sepimentum fumosum, sp. nov.

Antennæ ferruginous, the third joint with grey tomentum; palpi tawny. Thorax and abdomen greyish-brown, not metallic, the thorax with indistinct brown bands. Wings tinted brown; the veins dark-brown. Halteres ferruginous. Squamæ dark smoky-brown. Length, 7–8 mm.; wing, 6–7 mm.

Male.—Vertex black, face grey. Femora and tarsi black, the tibiæ dark-tawny.

Female.—Frontal band ferruginous; ocellar triangle and face grey. Legs tawny, the tarsi blackish.

Hab. Christchurch (H. Clark); Ashburton (W. W. Smith).

There are two bristles on the inner side of the middle tibiæ in both sexes. In the female two bristles are also present on the inner side of the fore and hind tibiæ; but these are sometimes absent in the male.

Sepimentum demissum, sp. nov.

Female.—Vertex and antennæ ferruginous, the frontal band rather darker; face tawny; proboscis and palpi dark-brown. Thorax and abdomen blackish, the latter with sub-metallic bronzy-green reflections. Legs tawny. Squamæ ferruginous. Wings tawny, distinctly deeper in colour near their bases; the veins tawny. Length, 6 mm.; wing, 5 mm.

Hab. Wellington (G. V. Hudson).

There is one strong bristle on the inner side of the middle tibiæ, none on the inner side of the fore and hind tibiæ. I have not seen the male.

Genus **MUSCA**, Linnæus (1761).

Epistome not prominent. Antennæ nearly reaching the end of the face; the third joint three or four times the length of the second; arista plumose on both sides. Abdomen not metallic. Middle tibiæ without any long bristles on the inner side. First posterior cell narrowly open; the fourth longitudinal vein curving at an obtuse angle, and afterwards a little concave to the margin.

Musca domestica.

M. domestica, Linnæus, Syst. Nat., ii., 990 (1761). *Musca vicaria*, Walker, Insecta Saundersiana, vol. i., p. 348 (1856).

Face yellowish or white or almost black. Thorax brown, with four black stripes. Abdomen in the female brown, tessellated with yellowish-white; in the male the sides of the abdomen are reddish. Wings colourless; the posterior cross-vein nearly straight, and situated at about its length from the

bend of the fourth longitudinal vein, and at about half its length from the margin of the wing. Legs black. Length, 6–8 mm.

Hab. Throughout New Zealand. Introduced.

Very variable in the colouring of the abdomen. The face is generally yellow in the female, but often white in the male. The front and vertex are usually black, but there is a distinct variety in which they are reddish-brown.

The statement that the introduced house-fly has displaced the native blow-flies, which have practically disappeared,* is quite erroneous. I doubt whether they compete in any way.

Musca taitensis.

Musca taitensis, Macquart, Dipt. Exot., part v., p. 310, pl. 20, fig. 8 (1843); Hutton, Cat. Dipt. N.Z., p. 61.

“Face and front black, the sides with whitish down. Palpi and antennæ black. Thorax black, with white bands. Abdomen marked with black and yellow in the female. Wings slightly brownish, halteres yellowish. Legs black. Length, 5 mm.” (Macquart).

Hab. Auckland (Dr. Sinclair); Tahiti (Paris Museum).

Dr. Sinclair's specimens were identified by Mr. Walker. I do not know the species. The brownish wings would seem to show that it is not correctly placed in *Musca*.

Genus MUSCINA, Desvoidy (1830).

Epistome not prominent; antennæ not reaching the abdomen; the third joint at least three times the length of the second; the arista plumose. Eyes bare. Fourth longitudinal vein convex after the bend; first posterior cell widely open.

Muscina stabulans.

Musca stabulans, Meigen, Diptera, v., 75, 42, pl. 43, fig. 35.

Frontal band black, face and sides of the front silvery; antennæ piceous, the base of the third joint ferruginous. Palpi ferruginous. Thorax grey, with four black bands; the tip of the scutellum ferruginous. Legs ferruginous, the bases of the femora and the tarsi blackish. Length, 7–8 mm.

Hab. Auckland (Reise der “Novara,” 1859); Whangarei and Christchurch (F. W. H.).

More common in the North than in the South.

Genus STOMOXYS, Geoffroy (1764).

Proboscis slender, elongated. Front broad in both sexes. Third joint of the antennæ three times the length of the

* Trans. N.Z. Inst., vol. xxviii., p. 5.

second; arista pectinated. Fourth longitudinal vein slightly bent; the first posterior cell widely open.

Stomoxys calcitrans.

Musca calcitrans, Fabricius, Sp. Ins., ii., 467, 4.

Frontal band black; ocellar triangle and face silvery; antennæ black; palpi fulvous. Thorax brownish-grey, with four black bands. Abdomen brownish-grey, with two spots on each segment and an interrupted dorsal band dark-brown. Legs dark-brown. Length, 7 mm.

Hab. Christchurch (F. W. H.). Introduced.

The male is darker than the female, the wings are brown, and the palpi long. The spots on the abdomen are larger, and the dorsal band is less interrupted in the male than in the female. It is commonly known as the horse-fly.

Stomoxys ænos.

Stomoxys ænos, Walker, Cat. Dipt. in Brit. Mus., p. 1160 (1849); Hutton, Cat. Dipt. N.Z., p. 57.

Thorax black, with indistinct tawny stripes. Abdomen black, tinged with yellowish-brown, two tawny stripes on the under-side. Legs black. Length, 5 mm.

Hab. Auckland (Dr. Sinclair).

I do not know this species.

Family ANTHOMYIDÆ.

“Thorax with a complete transverse suture. Fourth longitudinal vein straight or nearly so, hence the first posterior cell is fully open. Squamæ well developed, although in many cases of no large size” (Loew).

KEY TO THE NEW ZEALAND GENERA.

- Wings dark-brown, nearly as broad as long *Exsul*.
- Wings of the ordinary shape and colour.
 - Eyes approximated or subcontiguous in the male.
 - Eyes hairy; arista pubescent *Trichophticus*.
 - Eyes bare; arista minutely pubescent or bare.
 - Sixth longitudinal vein reaching the margin *Phorbia*.
 - Sixth longitudinal not reaching the margin.
 - Sixth longitudinal longer than seventh *Limnophora*.
 - Sixth longitudinal shorter than seventh *Homalomyia*.
 - Eyes widely separated in both sexes.
 - Arista slightly pubescent or bare *Cænosia*.

Genus TRICHOPTHICUS, Rondani (1870).

“Eyes hairy, and contiguous or subcontiguous in the males. Arista pubescent or bare; epistome sometimes prominent. Squamæ moderately developed, with unequal scales.

Sixth longitudinal vein not prolonged to the margin of the wing" (Meade).

In the New Zealand species the eyes are approximated in the male; the arista is distinctly pubescent, and the sixth longitudinal vein is short, reaching about halfway from the basal cell to the border of the wing; the third and fourth longitudinal veins diverge slightly outside the chief cross-vein.

KEY TO THE SPECIES.

Wings spotted	<i>T. maculipennis.</i>
Wings unspotted.	
Third joint of the antennæ less than twice the length of the second.	
Face yellowish	<i>T. dolosus.</i>
Face white.	
Length, 8 mm. to 9 mm.	<i>T. melas.</i>
Length, 5 mm.	<i>T. limpidus.</i>
Face black	<i>T. carbonarius.</i>
Third joint of antennæ more than three times the length of the second	<i>T. ordinatus.</i>

Trichophthicus melas.

Aricia melas, Schiner, Reise der "Novara," Dipt., p. 302 (1868); Hutton, Cat. Dipt. N.Z., p. 63.

Frontal band dark, face silvery. Thorax dark-grey, with three indistinct black bands. Abdomen dark-grey, the middle segments with a pair of triangular black marks separated by a pale band, which has a thin black line down the centre. Legs piceous, knees tawny. Wings brownish, darker anteriorly and at the base; squamæ brownish. Length, 8-9 mm.; wing, 7-8 mm.

Hab. Throughout New Zealand.

The facial ridges are not ciliated, but the fronto-orbital bristles extend halfway down the eyes. The third joint of the antennæ is not much longer than the first. The auxiliary and first longitudinal veins are not distinctly separated for the greater part of their length. The posterior cross-vein is sometimes sinuated, but more often it is nearly straight.

Trichophthicus dolosus, sp. nov.

Frontal band black, face pale-fulvous; antennæ piceous. Thorax greyish-brown, with three dark longitudinal streaks; scutellum greyish-brown. Abdomen grey; each of the middle segments with a pair of triangular dark spots, and a central narrow dark stripe; apical segment with a central triangular dark spot, the apex of which does not reach the end of the abdomen. Femora grey; tibiæ dark-fulvous; the tarsi blackish. Squamæ brownish. Wings tinted brownish, darker along the anterior portion and at the base; veins brown. The

auxiliary vein is distinct from the first longitudinal throughout its length. Length, 7–9 mm.; wing, 6–8 mm.

Hab. Christchurch (F. W. H.); Ashburton (W. W. Smith).

The eyes are only slightly hairy. The third joint of the antennæ is about one and a half times the length of the second. The abdomen is marked as in *T. melas*, but it is lighter in colour. The facial ridges are ciliated on their lower half.

Trichophthicus carbonarius, sp. nov.

Frontal band black, edged with white; face blackish; antennæ piceous. Thorax blackish, with three longitudinal darker bands; scutellum blackish. Legs black. Squamæ white, with a dark margin. Wings pellucid; veins black. Abdomen blackish, each segment with a pair of grey semi-circular spots on the posterior margin. Length, 7 mm.; wing, 6 mm.

Hab. Wellington (G. V. Hudson).

The arista is finely pubescent. The facial ridges are bare. Third joint of the antennæ about twice the length of the second.

Trichophthicus maculipennis, sp. nov.

Frontal band black, margined with silvery, which extends round the eyes; face pale-brown; antennæ black. Thorax brownish-grey, with three broad black bands; scutellum brownish-grey, black on the sides. Abdomen dark-brown, with a large semicircular grey mark on the posterior margin on each side; apical segment with a central black band. Legs blackish-brown. Squamæ nearly white. Wings pellucid, the veins blackish-brown; a round black spot on the chief cross-vein, and a smaller one where the posterior cross-vein meets the fourth longitudinal. Posterior cross-vein slightly sinuated. Length, 8 mm.; wing, 7 mm.

Hab. Christchurch (F. W. H.).

The eyes are hairy; the third joint of the antennæ is about one and a half times the length of the second. The facial ridges are ciliated.

Trichophthicus limpιδus, sp. nov.

Male.—Frontal band brown, face white; eyes approximated. Thorax blackish-brown. Abdomen dark-grey, with blackish irregular marks. Legs blackish-brown.

Female.—Frontal band brown, margined with yellowish-white, which colour extends over the face. Thorax pale-brown, with three narrow black lines; scutellum pale-brown. Abdomen grey, the middle segments with a pair of black triangular marks; last two segments without marks. Femora fuscous, tibiæ and tarsi tawny. Length, 6 mm.; wing, 6 mm.

Hab. Christchurch (F. W. H.).

In both sexes the wings are clear, the veins brown, and the posterior cross-vein is slightly sinuated. The eyes are slightly hairy; the arista is shortly pubescent. The third joint of the antennæ is about one and a half times the length of the second; the facial ridges are bare.

Trichophticus ordinatus, sp. nov.

Frontal band black, margined with white, which extends over the face; antennæ piceous. Thorax grey, with three long broad black bands; scutellum grey, the sides and a spot at the base black. Abdomen grey; the first segment black; the second, third, and fourth with a large triangular black spot on each side which nearly meet in the middle on the fourth segment; fifth segment with a central black band, which extends to the apex. Legs black. Squamæ slightly brownish. Wings pellucid, the veins blackish; the chief cross-vein slightly margined with brown; the posterior cross-vein slightly sinuated. Length, 8–9 mm.; wing, 7–8 mm.

Hab. Wellington (G. V. Hudson).

The third joint of the antennæ is four or five times the length of the second. The eyes are rather nearer in the male, and more hairy, than in the female. The facial ridges are strongly ciliated for the greater part of their length.

Genus **LIMNOPHORA**, R. Desvoidy (1830).

Eyes bare, contiguous or approximate in the males; arista slightly pubescent or bare. Abdomen oval or conical, and always marked on the dorsum with four or six large triangular or subquadrate spots. Squamæ well developed, considerably larger than the antisquamæ. Sixth longitudinal vein not reaching the margin of the wing.

Limnophora rapax, sp. nov.

Frontal band brown, margined with white, which colour extends over the face. Thorax pale-grey, with five longitudinal black lines; scutellum grey. Abdomen pale-grey; the three middle segments with a pair of triangular dark spots, rather distant from each other; apical segment with a central dark band. Femora grey, tibiæ tawny; tarsi blackish. Squamæ brownish. Wings pellucid, the veins brown; posterior cross-vein sinuated. Length, 10 mm.; wing, 8½ mm.

Hab. Christchurch (F. W. H.).

The facial ridges, as well as the eyes, are bare; the second joint of the antennæ is rather long; the third about one and a half times the length of the second; arista minutely pubescent. The first posterior cell gradually widens to the margin

of the wing; the sixth longitudinal vein extends about three-quarters of the way from the basal cell to the margin of the wing.

Genus HOMALOMYIA, Bouché (1834).

Head smooth and semicircular; eyes large, covering the sides of the head; bare and subcontiguous or approximate in the male. Arista subpubescent or bare, with the second joint often rather elongated. Squamæ moderate, larger than the antisquamæ. Abdomen mostly elliptical and flattened in the males, and marked with an angulated dorsal stripe; oval and immaculate in the females. Wings with the sixth longitudinal vein shortened, and the seventh longitudinal curved towards its extremity.

In the New Zealand species the eyes and facial ridges are bare, and the arista is pubescent. The antennæ are short, and the third joint is about twice the length of the second. There is no tubercle or thickening on the middle tibiæ of the males. In the females the squamæ are small, and not much larger than the antisquamæ. A short costal bristle is sometimes present.

KEY TO THE SPECIES.

Abdomen diaphanous near the base	<i>H. canicularis.</i>
Abdomen not diaphanous near the base.	
Legs fulvous	<i>H. fulvescens.</i>
Legs black.	
Wings smoky	<i>H. fuliginosa.</i>
Wings clear.	
Distance between cross-veins one and a half times the length of the posterior ..	<i>H. rava.</i>
Distance between cross veins rather more than length of posterior cross-vein.	
Body brown	<i>H. badia.</i>
Body grey	<i>H. frazinea.</i>

Homalomyia canicularis.

Musca canicularis, Linn., Syst. Nat., ii., 992 (1761).

Head silvery. Thorax grey, with four brown stripes. Abdomen testaceous, and semidiaphanous towards the base, with the exception of a dorsal stripe, which is dilated on the borders of the second and third segments. Length, 5–6 mm.; wing, 5–6 mm.

Hab. Throughout New Zealand. Introduced.

Homalomyia fulvescens, sp. nov.

Female.—Frontal band dark-brown; the ocellar triangle, margins of vertex, and face yellowish-white. Antennæ testaceous. Thorax yellowish-brown, with indistinct darker bands; scutellum yellowish-brown, bordered on the sides with

darker. Abdomen dark-brown, the middle segments with a semicircular yellowish-brown spot on each side at the posterior margins, and an irregular central yellowish-brown band; apical segment with a central yellowish-brown band. Legs fulvous, the tarsi blackish. Squamæ and halteres white. Wings pellucid, the veins piceous; the distance between the cross-vein and the posterior cross-vein about the length of the latter. Length, 5 mm.

Hab. Christchurch (F. W. H.).

The arista is slightly pubescent. I have not seen the male.

Homalomyia fuliginosa, sp. nov.

Male.—Frontal band black, the forehead black, with grey reflections, which colour goes halfway down the eyes; face grey. Thorax and scutellum black. Abdomen brown, with grey reflections; the middle segments with a dark triangular spot on each side; the apical segment with a dark central band. Legs black. Squamæ and halteres brownish-white. Wings smoky-brown; the distance between the two cross-veins about equal to the length of the posterior cross-vein. Length, 4–6 mm.

Hab. Christchurch (F. W. H.).

The arista is slightly pubescent, and the eyes are approximated.

Homalomyia badia, sp. nov.

Cheeks grey, showing a black spot in certain lights; antennæ dark-brown. Thorax and abdomen brown, the former with indistinct darker bands, the latter with indistinct darker marks. Legs dark-brown. Halteres pale-yellow. Wings pellucid, sometimes brownish near the base; distance between the two cross-veins rather more than the length of the posterior cross-vein. Length, 4–5 mm.

Male.—Eyes subcontiguous; frontal band black, face grey.

Female.—Face grey, the frontal band rather darker.

Hab. Christchurch and Rotorua (F. W. H.).

Homalomyia rava, sp. nov.

Female.—Vertex reddish-brown, passing into yellow-brown over the antennæ. It is bordered on each side with yellowish-white, which colour extends over the face. Thorax and abdomen light-grey. Legs blackish-brown. Wings pellucid; distance between the cross-veins about one and a half times the length of the posterior cross-vein. Length, 5 mm.

Hab. Christchurch (H. Clark).

Homalomyia fraxinea, sp. nov.

Thorax and scutellum pale-grey, the former with some indistinct dark lines. Abdomen pale-grey, the middle segments with a pair of indistinct dark spots. Legs blackish-grey. Squamæ white. Halteres yellow. Wings pellucid, the veins piceous; distance between the two cross-veins rather more than the length of the posterior cross-vein. Length, 5–6 mm.

Male.—Head and front silvery, except the ocellar triangle, which is grey, and a very narrow black frontal band, which is sometimes absent.

Female.—Frontal band reddish-brown, broadly margined with grey; ocellar triangle and face grey.

Hab. Christchurch (F. W. H.).

Genus **EXSUL**, gen. nov.

Eyes slightly hairy. Arista minutely pubescent. Cheeks hairy. Abdomen oblong, unspotted. Squamæ and anti-squamæ well developed, nearly equal. Wings very broad, the shoulder arched; third and fourth longitudinals parallel; the fifth diverging widely, making the posterior cross-vein longer than the distance between it and the chief cross-vein; sixth longitudinal reaching about two-thirds of the distance between the third basal cell and the margin of the wing; seventh longitudinal shorter than the sixth. The chief cross-vein lies inside the end of the first longitudinal.

A very remarkable genus, very different in appearance from any other fly, but clearly belonging to the *Anthomyiidae*.

Exsul singularis, sp. nov.

Frontal band black; the face greyish-white; antennæ piceous. Thorax dark-grey, with two distinct black longitudinal stripes, and two indistinct ones inside them. Abdomen dark-grey, the sides and apex with scattered, long, fulvous hairs. Legs jet-black. Halteres brownish. Squamæ nearly white. Wings dark-brown, with pale spots in the subcostal, anterior, and posterior basal cells, and a deep pale indentation at the apices of the submarginal and first posterior cells. Length, 12 mm.; length of wing, 13 mm., its breadth 10 mm.

Hab. Milford Sound (Professor Wall).

Two specimens of this very remarkable fly were seen, but only one was captured.

Genus **PHORBIA**, R. Desvoidy (1830).

“Eyes bare, contiguous or subcontiguous in the males, remote in the females. Arista tomentose or bare. Face slightly

prominent. Abdomen depressed, oblong or linear. Squamæ small, not much larger than the antisquamæ. Wings with the anal veins prolonged to the margin. Legs black" (Meade).

Phorbia novæ-zealandiæ, sp. nov.

Female.—Greyish-brown, the frontal band and eyes brownish-red; the antennæ and legs black. Thorax with a central dark band, and two rows of dark spots on each side of it. Abdomen with an interrupted central dark band. Squamæ white, margined with rusty. Halteres yellowish-white. Wings pellucid, the veins black. The distance between the two cross-veins is about one and a half times the length of the posterior cross-vein; the distance of the posterior cross-vein from the margin is about three-fourths of its length. Length, 5 mm.; wing, 5 mm.

Hab. Christchurch (F. W. H.).

The squamæ and antisquamæ are moderate in size, and nearly equal. The sixth longitudinal vein reaches the margin of the wing.

Genus CÆNOSIA, Meigen (1826).

Eyes bare, widely separated in both sexes; arista pubescent or bare. Forehead not projecting. Squamæ larger than the antisquamæ. Abdomen of the male generally subcylindrical and thickened at the end. Sixth longitudinal vein more or less abbreviated.

KEY TO THE SPECIES.

Cross-veins of wing bordered with dusky.				
Thorax grey	..	..	..	<i>C. spinipes.</i>
Thorax reddish-brown	..	..	..	<i>C. smithii.</i>
Cross-veins of wing not bordered.				
Vertex dark reddish-brown	..	..	..	<i>C. rubriceps.</i>
Vertex brownish-white.				
Antennæ fulvous	..	..	..	<i>C. purgatoria.</i>
Antennæ picous	..	..	..	<i>C. algivora.</i>

Cænosiæ spinipes.

Cænosiæ spinipes, Walker, Cat. Dipt. in Brit. Mus., p. 969 (1849); Hutton, Cat. Dipt. N.Z., p. 64.

"Cinerea, capite fulvo, thorace fusco trivittato, abdomine maculis sex trigonis canis ornato, palpis fulvis, antennis nigris, articulo 2^o ferrugineo, pedibus fulvis, tarsis nigris, alis cinereis." Length, 5 mm. (Walker.)

Hab. New Zealand (Voyage "Erebus" and "Terror").

I have not seen this species; probably it was taken at the Bay of Islands.

Cœnosia smithii, sp. nov.

Vertex reddish-brown, with tawny reflections; face yellowish-white; antennæ reddish-brown. Thorax reddish-brown, blackish below, with a pale-grey band on each side. Abdomen dark-grey, with tawny reflections; unspotted. Legs black, the femora with grey tomentum. Halteres and squamæ yellowish-brown. Wings pellucid, brownish at the base; veins tawny; the cross-veins bordered with fuscous. Length, 5 mm.

Hab. Ashburton (W. W. Smith).

The distance between the cross-veins is about one and three-quarters the length of the posterior cross-vein. The distance of the latter from the margin of the wing is rather less than its own length. The chief cross-vein lies outside the end of the first longitudinal.

Cœnosia rubriceps, sp. nov.

Vertex dark-reddish; the ocellar triangle and the face dark-grey; antennæ piceous. Thorax dark-grey, with three indistinct darker bands. Abdomen dark-grey, unspotted. Legs, including the tarsi, tawny. Halteres and squamæ brownish-white. Wings pellucid; the veins tawny; cross-veins not bordered. Length, 5 mm.

Hab. Otago (F. W. H.); on the sea-coast at Waikouaiti.

The distance between the cross-veins is more than twice the length of the posterior cross-vein. The distance of the latter from the margin is about three-fourths of its length. The chief cross-vein lies inside the end of the first longitudinal.

Cœnosia purgatoria, sp. nov.

Male.—Head yellowish or brownish-white, a round brown spot at the ocelli; frontal band with brown reflections; antennæ tawny. Thorax pale yellowish-grey, without any marks. Abdomen pale-grey, unspotted. Femora dark-grey; the tibiæ and tarsi tawny. Halteres pale-brown. Squamæ white. Wings pellucid, the veins tawny. End of the abdomen swollen.

Female.—Ash-grey; the face white. Legs and wings as in the male.

Length, ♂ 6 mm., ♀ 7 mm.

Hab. Wellington (G. V. Hudson).

The distance between the cross-veins is about one and three-fourths the length of the posterior cross-vein. The distance of the latter from the margin is rather more than half its length. The chief cross-vein lies just outside the end of the first longitudinal.

Cœnosia algivora, sp. nov.

Female.—Vertex tawny; face yellowish-white, with yellow reflections. Antennæ piceous. Thorax pale yellowish-grey, with indistinct longitudinal dark bands. Abdomen pale yellowish-grey. A large rather darker triangular mark covers the centres of the second and third segments, its broad base being on the posterior border of the latter segment. The fourth segment has three indistinct dark spots; the fifth segment is irregularly marked. Legs dark-grey. Halteres brown. Squamæ white. Wings pellucid, the veins piceous. Length, 6 mm.

Hab. Christchurch (F. W. H.); on the sea-shore.

The distance between the cross-veins is about one and a quarter times the length of the posterior cross-vein. The distance of the latter from the margin is less than half its length. The chief cross-vein is just beyond the end of the first longitudinal.

Division II. MUSCIDEA ACALYPTATÆ.

Squamæ absent.

KEY TO THE NEW ZEALAND FAMILIES.

First joint of the posterior tarsi longer than the second.

Auxiliary vein more or less separated from the first longitudinal.

Oral vibrissæ present.

Costa with distant long bristles *Helomyzidæ*.

Costa without distant long bristles.

Third joint of the antennæ oblong *Corâyluridæ*.

Third joint of the antennæ round *Phycodromidæ*.

Oral vibrissæ absent.

Basal cells large.

Tibiæ with a preapical bristle *Sciomyzidæ*.

Basal cells small.

Tibiæ with a preapical bristle *Sapromyzidæ*.

Tibiæ without a preapical bristle *Opomyzidæ*.

Auxiliary vein completely united to the first longitudinal.

Basal cells complete, large *Piophilidæ*.

Basal cells complete, small *Agromyzidæ*.

Basal cells incomplete.

Mouth large *Ephydrinidæ*.

Mouth of ordinary size.

Oral vibrissæ present; claws very small *Drosophilidæ*.

Oral vibrissæ absent; claws of ordinary size *Oscinidæ*.

First joint of the posterior tarsi shorter than the second *Borboridæ*.

Family CORDYLURIDÆ.

“Neuration of the wings complete; both posterior basal cells of considerable size; auxiliary vein well separated from the first longitudinal; first longitudinal bare. Whole lateral

border of the front bristly; anterior border of the mouth with strong, usually numerous, vibrissæ" (Loew).

Genus *CORDYLURA*, Fallen (1819).

Front broad; face vertical; antennæ not reaching the epistome; the third joint linear, longer than the second, somewhat truncated at the tip; arista plumose or nearly bare. Legs stout, bristly. Abdomen in the male linear and thickened at the tip, in the female fusiform.

Cordylura debilis, sp. nov.

Vertex reddish-brown, the face yellow; antennæ and proboscis piceous. Thorax reddish-brown, with a grey band on each side. Abdomen and legs brown, the femora dusted with grey. Wings slightly tinged with brown; the veins dark-brown; the two cross-veins margined with fuscous, which is more distinct when viewed obliquely. The chief cross-vein lies outside the end of the first longitudinal; the distance between the two cross-veins is about one and three-quarter times the length of the posterior cross-vein, which lies at a distance of about one and a half times its own length from the margin of the wing. Length, 5 mm.; wing, 4 mm.

Hab. Christchurch (H. Clark, F. W. H.).

The antennæ do not reach the epistome; the third joint is oblong, and about twice the length of the second. The arista is short and minutely pubescent. The abdomen is about as long as the head and thorax; linear and thickened at the end in the male, elliptical in the female.

Family PHYCODROMIDÆ.

"Thorax, scutellum, and abdomen flat; pleuræ excised above the coxæ. Front bristly; border of the mouth hairy, with no distinct vibrissæ. Legs stout; tibiæ with spurs, and each with an erect hair, or small bristle, on the outside before the tip; the first joint of the posterior tarsi not abbreviated; last joint of all the tarsi enlarged, with stout claws and long pulvilli. Neuration of the wings complete; auxiliary vein distinct in its whole length; costa without bristles; basal cells not small" (Loew).

Genus *CÆLOPA*, Meigen (1830).

Face short, very concave. Antennæ very short; the third joint nearly round, not longer than the second; arista bare or pubescent. Legs hairy, the tibiæ slightly curved.

Cœlopa littoralis.

C. littoralis, Hutton, Cat. Dipt. N.Z., p. 69 (1881); Hudson, Man. N.Z. Ent., p. 63, pl. vii., fig. 13.

Vertex nearly black, the ocellar triangle brown, face grey; antennæ and proboscis reddish-brown. Thorax brown, the sides and lower surface grey. Abdomen greyish-brown. Legs pale-brown, the upper surfaces of the femora dark-brown. Halteres yellow. Wings slightly tinged with brown; the veins brown. Length, ♂ $5\frac{1}{2}$ mm., ♀ 7 mm.; wing, ♂ 5 mm., ♀ 6 mm.

Hab. Wellington; on the sea-beach.

The body is slightly and the legs very hairy. The face is deeply concave, and has but few hairs. The thorax is not very flat. The chief cross-vein lies just opposite the end of the first longitudinal; the distance between the two cross-veins is about twice the length of the posterior cross-vein, and the distance of the latter from the margin is about one-half of its own length.

Cœlopa monstruosa, sp. nov.

Colours like the last, but the legs redder brown. The middle legs elongated, considerably longer than the hind legs, and their tibiæ and tarsi thickly clothed with long hairs. Length, 8 mm.; wing, $8\frac{1}{2}$ mm.

Hab. Fortrose, Southland (Mrs. Haswell).

The elongated middle legs seem adapted for swimming or walking on water. The chief cross-vein lies just outside the end of the first longitudinal; the distance between the two cross-veins is about two and a half times the length of the posterior cross-vein, the distance of which from the margin is about half its own length.

Family HELOMYZIDÆ.

“Neuration of the wings complete; costa bristly; first longitudinal vein not abbreviated, but bare; the auxiliary vein often approximated to it. Front bristly on its upper side only; a strong bristle on each side of the anterior border of the mouth. All the tibiæ with spurs and with an erect bristle on the outer side before their apices” (Loew).

KEY TO THE GENERA.

Third joint of the antennæ oval .. .. .	.. .. .	<i>Helomyza</i> .
Third joint of the antennæ nearly circular .. .. .	.. .. .	<i>Leria</i> .

Genus HELOMYZA, Fallen (1839).

Antennæ rather short, the third joint oval; arista plumose or pubescent. Wings moderately long, the costa setigerous. Legs hairy, with a few bristles. Abdomen linear in the male,

obconical in the female. A humeral bristle is always present.

The two following species have the head and eyes nearly round; the second joint of the antennæ is short and conical, the third is oval and considerably longer than the second; the arista is minutely pubescent. The costa of the wing is setigerous from the centre of the costal cell nearly to the tip, but there are no bristles on any of the longitudinal veins. The middle tibiæ have strong spurs, but they are small or absent on the hind tibiæ.

KEY TO THE SPECIES.

Distance between the cross-veins one and a half times the length of the posterior	<i>H. scutellata.</i>
Distance between the cross-veins two and a half times the length of the posterior	<i>H. hudsoni.</i>

***Helomyza scutellata*, sp. nov.**

Head and antennæ dark-brown; the face tawny, with grey tomentum. Abdomen dark-brown. Legs pale-tawny. Wings brownish; veins tawny; the cross-veins bordered with fuscous. The chief cross-vein lies considerably outside the end of the first longitudinal; the distance between the two cross-veins is about one and a half times the length of the posterior cross-vein, and the posterior cross-vein lies at a distance of two-thirds of its own length from the margin of the wing. Length, 5 mm.; wing, 5 mm.

Male.—Thorax and scutellum pale-brown above, the sides dark reddish-brown, with a longitudinal white band to the base of the wings; tawny below.

Female.—Thorax brown, darker on the sides; lower surface, and a band on each side meeting at the apex of the scutellum, pale-yellow.

Hab. Wellington (G. V. Hudson).

The third joint of the antennæ is broadly oval, about three times the length of the second. The setæ on the costa are short, and easily overlooked.

***Helomyza hudsoni*, sp. nov.**

Front testaceous, the ocellar triangle brown; face yellowish-white; antennæ dark-ferruginous. Thorax reddish-brown, indistinctly banded, the sides with a yellowish-white band. Abdomen and legs tawny. Wings brownish, the chief cross-vein broadly and the posterior cross-vein narrowly bordered with brown. Length, 5 mm.; wing, 5 mm.

Hab. Wellington (Hudson); Christchurch (F. W. H.).

The first longitudinal vein is short, the chief cross-vein lying just outside its end; auxiliary vein closely approximated to the first longitudinal for the greater part of its length, but

distinct from it. The distance between the two cross-veins is about two and a half times the length of the posterior cross-vein, the distance of which from the margin of the wing is about one-half of its own length.

Genus *LERIA*, R. Desvoidy (1830).

Head slightly produced, front flat, epistome rather prominent. Palpi nearly filiform. Antennæ very short, the third joint round, rather longer than the second; arista long, bare. Costa of wing armed with short spines. Legs slender, pubescent, with a few bristles.

Leria placata, sp. nov.

Brown or dark-tawny, the abdomen rather darker than the legs; ocellar triangle and face yellowish; halteres rusty-white. Wings almost colourless, unspotted; the veins tawny. Posterior cross-vein straight. Length, 7 mm.; wing, 6 mm.

Hab. Christchurch (H. Clark).

The head in profile is oblong, higher than long, and the face is distinctly excavated. The eyes are small and round. The antennæ are placed in grooves on the face, their bases partly hidden by the projecting front; the first and second joints are very small, the third is larger and nearly circular. The arista is pubescent and very long in the male; a bristle is present on the humeral callus. The costa is setigerous from the middle of the costal cell nearly to the tip of the wing. None of the longitudinal veins have bristles. The chief cross-vein lies outside the end of the first longitudinal. The distance between the two cross-veins is about one and a half times the length of the posterior cross-vein, which lies at about one-half of its own length from the margin of the wing. Middle tibiæ with strong spurs; the fore and hind tibiæ without spurs.

Leria fulva, sp. nov.

Fulvous or testaceous, with grey tomentum on the upper surface of the head, thorax, and abdomen, seen only in certain lights. A broad grey stripe on each side from the prothorax through the base of the wing. Wings ochraceous; veins tawny; the cross-veins narrowly bordered with fulvous. Length, 5 mm.; wing, 5 mm.

Hab. Christchurch (H. Clark).

The third joint of the antennæ is nearly circular. The middle tibiæ have strong spurs, the hind tibiæ without spurs. A bristle is present on the humeral callus. The costa of the wing has short distant bristles to beyond the

end of the first longitudinal vein. The chief cross-vein lies outside the end of the first longitudinal. The distance between the cross-vein is about twice the length of the posterior cross-vein, and the distance of the latter from the margin of the wing is one-half of its own length.

Family SCIOMYZIDÆ.

“Neuration of the wing complete; two basal cells of rather considerable size; auxiliary vein well separated from the first longitudinal. On the lateral border of the front, before the vertical bristles, there are a pair of bristles. Face proportionately long, without distinct grooves for the antennæ; border of the mouth sharp, without vibrissæ. Middle tibiæ with a number of bristles on the tip; all the tibiæ on the outside, before the tip, with a small upright bristle” (Loew).

KEY TO THE GENERA.

Third joint of the antennæ oval.				
Antennæ short	..	..	..	.. <i>Tetanocera.</i>
Antennæ elongate	..	..	..	.. <i>Limnia.</i>
Third joint of the antennæ nearly circular.				
Face strongly receding	..	..	..	.. <i>Trigonometopus.</i>
Face slightly receding	..	..	..	.. <i>Sciomyza.</i>

Genus SCIOMYZA, Fallen (1839).

Antennæ not reaching the epistome, the third joint nearly circular, much longer than the second. Head large, face slightly receding; epistome not projecting. Abdomen depressed, linear in the male, fusiform in the female. Legs pubescent, slightly bristly.

Sciomyza nigricornis.

S. nigricornis, Macquart, Dipt. Exot., Supp. iv., p. 250, pl. 25, fig. 11 (1850); Hutton, Cat. Dipt. N.Z., p. 67.

“Testacea. Antennis nigris, basi testaceis. Pedibus flavis. Femoribus apice nigris, anticis spinosis; tibiis apice nigris. Alis flavis.” Length, 8 mm. (Macquart.)

Hab. Akaroa, New Zealand, and Tasmania (Paris Museum).
I do not know this species.

Genus TETANOCERA, Dumeril (1809).

Face oblique. Antennæ elongate; second joint long; the third oval, a little longer than the second. Legs stout, hairy, with a few bristles; the hind femora not much thickened. Abdomen nearly linear in the male, subfusiform in the female.

Tetanocera rara, sp. nov.

Male.—Front and antennæ reddish-yellow; lower face, palpi, and proboscis pale-tawny; arista dark, pubescent. Dorsum of the thorax and scutellum golden-yellow, the sides reddish-brown, with a grey band; lower surface grey. Abdomen dark-brown, the apex paler. Legs pale-tawny, the apices of the middle and hind femora, as well as of the hind tibiæ, dark-brown. Wings orange, unspotted, the subcostal cell brown; veins tawny; posterior cross-vein straight. Length, $9\frac{1}{2}$ mm.; wing, 9 mm.

Hab. Wellington (G. V. Hudson).

The second joint of the antennæ is short, about one-third of the length of the third joint, which is oval. The costa has strong rather distant bristles from the middle of the costal cell nearly to the tip of the wing. There are no vibrissæ. The chief cross-vein lies just inside the end of the first longitudinal; the distance between the two cross-veins is about two and a half times the length of the posterior cross-vein, which is situated at about its own length from the margin of the wing. The middle tibiæ are spurred, but not the hind tibiæ.

Genus LIMNIA, R. Desvoidy (1830).

Front projecting. Antennæ as long as the head; second joint broad, compressed, equal in length to the third. Posterior femora not elongated or thickened; middle tibiæ terminated by two long spines.

In the New Zealand species put into this genus the eyes are prominent, the face is slightly excavated, and the third joint of the antennæ is oval.

KEY TO THE SPECIES.

Wings not ocellated; posterior cross-vein strongly sinuated.

Wings with nine or ten spots *L. sigma*.

Wings with numerous spots *L. tranquilla*.

Wings ocellated; posterior cross-vein moderately sinuated.

Tibiæ not darker at the tips *L. transmarina*.

Tibiæ darker at the tips *L. obscura*.

Limnia sigma.

Tetanocera sigma, Walker, Cat. Dipt. in Brit. Mus., p. 1084 (1849). *Cylindra sigma*, Hutton, Cat. Dipt. N.Z., p. 65.

Vertex and antennæ bright-tawny, the lower face white. Thorax brownish-grey above, with four brown bands; the sides reddish-brown, with a white band; under-surface white. Abdomen reddish-brown, darker in the female than in the male. Legs ferruginous. Wings slightly yellow; costa piceous,

veins tawny. The marginal cell has three or four brown spots, and there is another at the end of the second longitudinal vein. A spot on the chief cross-vein, and one at the anterior end of the posterior cross-vein; the first posterior cell has one or two spots near its apex, and one on the anterior margin of the second posterior cell. The posterior cross-vein is strongly sinuated. Length, 7 mm.; wing, $7\frac{1}{2}$ mm.

Hab. Canterbury (H. Clark); Otago (F. W. H.).

***Limnia tranquilla*, sp. nov.**

Dark-ferruginous, the vertex bright yellowish-tawny. Tibiæ, except their apices, and tarsi, except their two last joints, tawny. Wings yellow, spotted with brown; the subcostal cell dark; the veins piceous, tawny at their bases; posterior cross-vein strongly sinuated. The marginal cell has from four to six spots, the submarginal five to seven. The first posterior cell has four or five, the outer one of which is ringed but not ocellated. The second posterior cell has two spots. The anal and auxiliary cells are clouded, and the cross-veins are bordered with brown. Length, 7 mm.; wing, 7 mm.

Hab. Auckland (Captain Broun).

***Limnia transmarina*.**

L. transmarina, Schiner, Reise der "Novara," Dipt., p. 234 (1868); Hutton, Cat. Dipt. N.Z., p. 65.

Pale-tawny, the vertex and antennæ yellowish. Thorax grey, with two brown lines; the sides brown, with a white band; lower surface white. Tips of the femora white. Wings yellow, the posterior cross-vein moderately sinuated. The marginal cell has four large spots and usually two smaller ones. The rest of the wing is vaguely ocellated with pale-grey. Length, $6\frac{1}{2}$ mm.; wing, $6\frac{1}{2}$ mm.

Hab. Auckland (Voy. "Novara"); Christchurch (H. Clark).

***Limnia obscura*, sp. nov.**

Cylindra sigma, Hudson, Man. N.Z. Ent., p. 62, pl. vii., fig. 14.

Vertex and antennæ bright-tawny, the frontal band darker; face yellowish-white. Thorax tawny above, with two obscure brown lines; a white stripe on each side, below which is a brown stripe; under-surface white. Abdomen dark-tawny. Legs tawny; the upper surfaces of the femora, the apices of the tibiæ, and the last two joints of the tarsi dark-brown. Wings pale-yellow, ocellated, the posterior cross-vein moderately sinuated. The marginal cell has four large brown spots, the two inner of which cross the subcostal

cell and reach the costa. Submarginal and first and second posterior cells with ocellated spots. Anal and auxiliary cells with simple spots. Cross-veins broadly margined; the second posterior cell with a sinuated, transverse, pale line. Length, 9 mm.; wing, 8 mm.

Hab. Auckland (Captain Broun); Wellington (Hudson).

Genus TRIGONOMETOPUS, Macquart (1835).

Head projecting in front, the face strongly receding. Third joint of the antennæ rounded, or a little elongated. Cheeks with a row of well-developed bristles situated on a ridge descending from the front near the eye and extending back to the occiput.

Trigonometopus bipunctatus, sp. nov.

Front dark reddish-brown, with a narrow pale central line; the face grey. Antennæ dark-ferruginous. Thorax brownish-grey, with four broad reddish-brown bands; the sides and under-surface grey. Abdomen brown, with grey reflections on the sides and posterior margins of the segments. Legs tawny in the male, brown in the female. Wings pellucid, the two cross-veins broadly margined with brown. Length, 7 mm.; wing, 8 mm.

Hab. Chatham Islands (J. Fougère).

The second joint of the antennæ is rather long and conical; the third joint is nearly circular; the arista is bare. There is a small curved ridge on each cheek, running from near the base of the antenna to about the level of the opening of the mouth, which bears fine hairs; the cheeks outside this ridge are slightly hairy. The costa of the wing is setigerous from the end of the auxiliary vein nearly to the tip; none of the longitudinal veins have bristles. The chief cross-vein lies just inside the end of the first longitudinal. The distance between the two cross-veins is about two and a half times the length of the posterior cross-vein, which is situated about one-half of its own length from the margin of the wing. The middle tibiæ only are spurred.

Family SAPROMYZIDÆ.

“Neuration complete; auxiliary vein of the usual structure, frequently very much approximated to the first longitudinal; costa of the wing without bristles or marginal spine; longitudinal veins without peculiar hairs; posterior basal cells small. Front with a single row of bristles on each side; no vibrissæ on the border of the mouth; clypeus rather rudimentary. Only the middle tibiæ have terminal spurs; all the tibiæ with a small erect bristle on the exterior side, before the tip. Ovipositor of the female not horny” (Loew).

KEY TO THE GENERA.

Third joint of antennæ oval .. .. .	..	..	..	..	<i>Sapromyza</i> .
Third joint of antennæ linear .. .. .	..	..	..	..	<i>Lauxania</i> .

Genus SAPROMYZA, Fallen (1820).

Head subhemispherical; face a little inclined backwards; epistome bare, not projecting. Antennæ short, the third joint generally oblong, compressed, the extremity obtuse, the arista pubescent.

KEY TO THE SPECIES.

No white streaks on the margin of the eyes .. .. .	..	..	..	..	<i>S. dichromata</i> .
White streaks on the margin of the eyes.					
Coxæ and bases of femora yellow .. .. .	..	..	..	..	<i>S. sciomyzina</i> .
Coxæ and bases of femora brown .. .. .	..	..	..	..	<i>S. decora</i> .

Sapromyza dichromata.

Sap. dichromata, Walker, Cat. Dipt. in Brit. Mus., p. 988 (1849); Hutton, Cat. Dipt. N.Z., p. 66.

Tawny, except the abdomen, which is dark-brown. Length, 5–5½ mm.

Hab. Throughout New Zealand.

The third joint of the antennæ is oval, about twice the length of the second; arista minutely pubescent. The auxiliary vein is closely approximated to the first longitudinal for about two-thirds of its length.

Sapromyza sciomyzina.

Sap. sciomyzina, Schiner, Reise der "Novara," Dipt., p. 278 (1868); Hutton, Cat. Dipt. N.Z., p. 67.

Head black, margins of the eyes with white streaks; antennæ blackish-brown. Thorax ferruginous. Abdomen black. Legs blackish-brown, the coxæ and bases of the femora yellow; the middle and hinder tarsi light-brown. Wings tinged brownish. Length, 5½ mm.

Hab. Auckland (Voyage of the "Novara").

I do not know this species.

Sapromyza decora.

Sap. decora, Schiner, Reise der "Novara," Dipt., p. 277 (1868); Hutton, Cat. Dipt. N.Z., p. 67.

Head brown, front paler with a tawny centre, margins of the eyes with white streaks; lower face tawny. Thorax brown, with two white streaks. Abdomen dark-brown. Legs brown; almost the whole of the middle tibiæ and the middle part of the hind tibiæ yellowish. Wings slightly tinted with yellow. Length, 4 mm.

Hab. Auckland (Voyage of the "Novara").

I do not know this species.

Genus LAUXANIA, Latreille (1805).

Body dark, shining; antennæ reaching the epistome, the third joint elongated, linear; face receding.

Lauxania bilineata, sp. nov.

Dark-brown, shining, with two white bands extending from the head, just inside the eyes, along the thorax; the front between the white bands jet-black. Antennæ piceous. Legs dark-brown, the distal ends of the middle and hind tibiæ as well as all the tarsi tawny. Wings ochraceous, the veins tawny. Length, 5 mm.; wing, 4 mm.

Hab. Otago and Canterbury (F. W. H.).

There are two fronto-orbital bristles, but none on the front. No vibrissæ. The third joint of the antennæ is linear, its length about three and a half times its breadth; the arista is minutely pubescent. The tibiæ have a preapical bristle. The chief cross-vein lies outside the end of the first longitudinal. The distance between the cross-veins is about one and a half times the length of the posterior cross-vein, and the distance of this from the margin is about one-half of its length.

Family OPOMYZIDÆ.

“Front with stout bristles above; clypeus rudimentary; border of the mouth either pubescent or with long hairs, the foremost of which sometimes forms a distinct vibrissa. Proboscis short; palpi rather small. Middle tibia with a distinct, posterior tibia with a very short, spur; the exterior side of the tibiæ without an erect bristle before the tip; claws and pulvilli small. Wings elongated and narrow, with no bristles on the costa; the axillary incision wanting or very small. First longitudinal vein much abbreviated; the auxiliary vein becomes obsolete before reaching the first longitudinal; the latter emits, shortly before its end, towards the costa, a branch, which may be considered as the end of the auxiliary vein. Basal cells small” (Loew).

Genus OPOMYZA, Fallen (1820).

Head and thorax convex, with a few bristles. Antennæ short, the first and second joints minute, the third round; arista pubescent. Abdomen sublinear. Wings generally spotted; the first longitudinal vein ending at one-fourth the length of the wing. Legs moderate.

Opomyza apicalis.

Op. apicalis, Walker, Cat. Dipt. in Brit. Mus., p. 114 (1849); Hutton, Cat. Dipt. N.Z., p. 69.

Head and thorax pale-tawny; abdomen dark-brown. Legs

tawny. Wings colourless, a dusky spot at the apex of the submarginal cell. Length, 4 mm.

Hab. Bay of Islands (Sir J. Hooker); Christchurch (H. Clark).

The auxiliary vein is almost entirely amalgamated with the first longitudinal.

Family PIOPHILIDÆ.

“Auxiliary vein coalescent with first longitudinal. Front with some small bristles above; border of the mouth with a vibrissa on each side. Clypeus rudimentary. Legs rather stout; the middle tibiæ with spurs; no erect bristle on the outside before the tip” (Loew).

Genus PIOPHILA, Fallen (1820).

Body shining, not bristly. Head nearly round; mouth not prominent. Antennæ short, not reaching the epistome; the third joint a little longer than broad, about twice the length of the second; arista bare. Abdomen nearly linear, a little longer than the thorax. Basal cells of the wing large. Legs pubescent.

Piophila smithii, sp. nov.

Vertex of head and thorax shining-black; antennæ and lower face tawny or testaceous. Second joint of the arista rather elongated, tawny; the third joint black, bare. Abdomen dark-brown. Legs dark-brown or black; the coxæ, knees, fore and middle tibiæ, and all the tarsi tawny. Wings clear, the veins tawny. Costa very thick, extending round the wing to the tip of the fourth longitudinal; distance between the two cross-veins about one and a half times the length of the posterior cross-vein; the distance of the posterior cross-vein from the margin of the wing is about half its own length. Length, 4 mm.; wing, 3½ mm.

Hab. Ashburton (W. W. Smith).

The auxiliary vein is united to the first longitudinal for its whole length, but it can be recognised without difficulty.

Family EPHYDRINIDÆ.

“Face convex, without distinct grooves for the antennæ. Clypeus very much developed; opening of the mouth large; proboscis thickened, with a swollen chin. Auxiliary vein distinct only at its base; the foremost of the two small basal cells united with the discal cell. Middle tibiæ with spurs” (Loew).

KEY TO THE GENERA.

Mouth very large	..	..	..	..	<i>Ephydra.</i>
Mouth moderate; arista pectinated	..	..	..	..	<i>Domina.</i>

Genus *EPHYDRA*, Fallen (1813).

Face vaulted and projecting; eyes bare; opening of the mouth very large, ciliated on its border; clypeus concealed in the oral cavity; arista pubescent. Claws long and nearly straight; pulvilli indistinct. No vibrissæ.

Ephydra aquaria, sp. nov.

Vertex dark-brown, with slight æneous reflections; the face brownish-yellow. Antennæ and proboscis piceous. Thorax brown, shining, the sides and under-surface brownish-yellow. Abdomen dark-brown, with bronzy reflections. Legs black. Wings clear; the veins black. Chief cross-vein opposite the end of the first longitudinal; distance between the two cross-veins rather more than twice the length of the posterior, which is situated at about one-half of its length from the margin of the wing. Length, 5 mm.; wing, $4\frac{1}{2}$ mm.

Hab. Christchurch (F. W. H.).

The third joint of the antennæ is oval and about twice the length of the second; the arista is pubescent. There are no small basal cells in the wing.

Genus *DOMINA*, gen. nov.

Head vertical; face broad; mouth rather large; the clypeus prominent. Eyes bare. Third joint of the antennæ large, nearly round; the arista pectinated. Bristles on the vertex, but none round the mouth; a pair of vibrissæ considerably above the oral opening. Fore femora not thickened. Wings without the small basal cells. First longitudinal vein attaining to about one-fifth of the wing, the second to three-fourths, and the third to the tip. The costa stops at the end of the third longitudinal vein.

Domina metallica, sp. nov.

Æneous, shining; the tarsi tawny. Wings pale-brownish, the veins piceous. The chief cross-vein lies just inside the end of the first longitudinal; the distance between the two cross-veins is about three times the length of the posterior cross-vein, which is placed rather more than its own length from the margin of the wing. Length, 2 mm.

Hab. Christchurch (F. W. H.).

The third joint of the antennæ is rather longer than broad. The arista carries six or eight long hairs on the upper side only.

Family *DROSOPHILIDÆ*.

“Front with bristles above; face with distinct subantennal grooves; a feeble, often rather indistinct, vibrissa at the border of the mouth. Middle tibia with very feeble spurs; on

the exterior side there is either a very small or no erect bristle before the tip. Wings without bristles on the costa; the first longitudinal vein much abbreviated; the auxiliary vein rudimentary; the discal cell usually, but not in all genera, united with the foremost of the two basal cells. Claws and pulvilli very small" (Loew).

Genus *DROSOPHILA*, Fallen (1820).

Head and thorax convex, with a few bristles. Antennæ short, the third joint nearly linear; arista with five or six long hairs on each side. Abdomen linear in the male, elliptical in the female.

KEY TO THE SPECIES.

Thorax tawny, unspotted	..	..	..	..	<i>D. brouni</i> .
Thorax tawny, spotted with brown	..	..	..	..	<i>D. marmorata</i> .
Thorax dark-brown	..	..	..	..	<i>D. clarkii</i> .

***Drosophila brouni*, sp. nov.**

Tawny, the under-surface and legs paler, yellowish; eyes and antennæ darker, brown. Abdomen dark-brown above, tawny below. Wings nearly colourless, the veins dark-brown; chief cross-vein opposite the end of the first longitudinal; distance between the cross-veins about two and a half times the length of the posterior cross-vein; the distance of the latter from the margin of the wing is about equal to its own length. Length, 3 mm.; wing, 3 mm.

Hab. Auckland (H. Suter).

The arista has about ten long hairs.

***Drosophila marmorata*, sp. nov.**

Head and thorax tawny mottled with dark-brown; abdomen dark-brown. Halteres and legs pale-yellow, fuscous on the outer side of the femora and tibiæ. Wings colourless; the chief cross-vein lies rather outside the end of the first longitudinal; the distance between the cross-veins is two and a half times the length of the posterior cross-vein; the distance of the latter from the margin of the wing is about equal to its own length. Length, 3 mm.; wing, 3 mm.

Hab. Auckland (H. Suter).

The arista has about eight long hairs.

***Drosophila clarkii*, sp. nov.**

Rather dark-brown; the lower surface and the legs pale-tawny; antennæ dark-brown. Wings clear, the veins piceous. The chief cross-vein lies a little outside the end of the first longitudinal; the distance between the cross-veins is about three times the length of the posterior cross-vein; and the distance of the posterior cross-vein from the margin of the

wing is about equal to three-fourths of its length. Length, $2\frac{1}{2}$ mm.; wing, $2\frac{1}{2}$ mm.

Hab. Christchurch (H. Clark).

The mouth has a row of short bristles on each side. The arista has twelve or fourteen long hairs.

Family OSCINIDÆ.

“Front without bristles, the crown having only a few short ones; border of the mouth without vibrissæ, but sometimes a small hair on each side. Middle tibiæ with small spurs; none of the tibiæ with erect bristle on the outside before the tip. Costa of the wing without bristles. Auxiliary vein completely wanting; the anterior of the two small basal cells united with the discal cell, the posterior one totally wanting” (Loew).

Genus OSCINIS, Latreille (1804).

Head transverse; front prominent, face oblique. Antennæ short, not reaching the epistome; third joint nearly round, twice the length of the second; arista bare. Costa extending to the tip of the fourth longitudinal vein. Legs moderate, the hind femora slender; the tibiæ straight.

Oscinis badia, sp. nov.

Uniform blackish-brown; the third joint of the antennæ and the tarsi dark-tawny. Wings clear, veins piceous. The chief cross-vein lies opposite the end of the first longitudinal; the distance between the two cross-veins is about twice the length of the posterior cross-vein; and the posterior cross-vein is distant from the margin of the wing about two and a half times its own length. Length, 3 mm.; wing, $2\frac{1}{2}$ mm.

Hab. Queenstown (F. W. H.).

The mouth has a pair of small vibrissæ, and the vertex has a row of short bristles. Eyes with very short hairs. Third joint of the antennæ nearly round; the arista bare and bent down. The fore femora are rather thickened.

Family AGROMYZIDÆ.

“Front with strong bristles; border of the mouth with a vibrissa on each side. Middle tibiæ with a terminal spur; none of the tibiæ have an erect bristle on the outside before the tip. Wings without bristles on the costa; first longitudinal vein very short, and the auxiliary vein connected with it at the tip; basal cells present, but small; posterior cross-vein generally far distant from the border of the wing” (Loew).

Genus *AGROMYZA*, Fallen (1823).

Antennæ short, the first and second joints very small, the third round; arista bare. Wings moderately long; first longitudinal vein reaching to about one-third of the length of the wing.

Agromyza australensis.

Agr. australensis, Mik., Verh. z.-b. Wien, xxxi., p. 202, pl. xiii., fig. 15 (1881).

Greyish-brown; the abdomen, in some lights, luminous grey; middle and hind legs pale-tawny. (The fore legs missing.) Posterior cross-vein about twice its length from the chief cross-vein, and about one and a half times its length from the margin. Length, $1\frac{3}{4}$ mm.; wing, 2 mm.

Hab. Auckland Islands (Dr. Krone).

Agromyza fulvifrons, sp. nov.

Grey; the frontal band pale-tawny. Ocellar triangle darker; face white, with yellowish reflections; antennæ piceous; proboscis and palpi dark-brown, with light tips. Thorax with very indistinct dark lines. Femora and tibiæ black, dusted with grey; the tarsi tawny. Wings clear, the veins piceous. The cross-vein lies outside the end of the first longitudinal; the distance between the cross-veins is about one and a quarter times the length of the posterior cross-vein, and the distance of the latter from the margin of the wing is about one and a half times its length. Length, 3-4 mm.

Hab. Christchurch (F. W. H.); on the sea-beach.

Family *BORBORIDÆ*.

"Thorax, scutellum, and abdomen flat; front bristly; face excavated, with a vibrissa on each side of the border of the mouth; clypeus developed. First joint of the posterior tarsi abbreviated. Neuration of the wing incomplete, only a commencement of the auxiliary vein being at most visible. The hindmost two basal cells are not complete in all the genera" (Loew).

Genus *APTERINA*, Macquart.

Wings absent or rudimentary.

I have seen no good description of this genus, consequently the following species is placed in it provisionally.

Apterina trilineata, sp. nov.

Wingless. Black, shining. Head ferruginous, with three longitudinal yellow-ochre bands on the front. Eyes reddish-

brown. Tarsi and knees of the middle and hind legs fulvous. Length, 2 mm.

Hab. Howick, near Auckland (Captain Broun).

The head is as broad as the thorax, the eyes very wide apart; mouth large; antennæ short, the third joint oval, pointed at the end, not much longer than the second; arista bare. A long bristle on each side of the mouth and a pair of bristles on the vertex, but no fronto-orbital bristles. Thorax rounded. Abdomen naked. Legs stout, all the tibiæ widening gradually towards their distal ends, bristly, a strong bristle near the end, and several on the middle tibiæ. Tarsi hairy, the first joint of the posterior pair short, not much longer than broad, shorter than the second joint. Ungues rather large. Wings and halteres absent.

Captain Broun informs me that this little fly is found on the ground, and is capable of jumping.

Genus *BORBORUS*, Meigen (1803).

Wings fully developed; the fourth longitudinal developed, but the fifth incomplete beyond the discal cell.

Borborus empiricus, sp. nov.

Uniform dark-brown; legs black. Wings tinged with brown, the veins dark-brown, the second section of the fourth longitudinal only faintly developed; distance between the two cross-veins about two and a half times the length of the posterior cross-vein; fifth longitudinal convex posteriorly, so that the discal cell is broader in the middle than at either end. Scutellum with bristles. Fore femora not thickened; middle tibiæ with stout bristles; hind tibiæ without spurs. Length, 2 mm.

Hab. Christchurch (F. W. H.).

The first longitudinal vein reaches to about one-third the length of the wing; the second to about two-thirds; while the third ends a little before the tip. The costa stops at the end of the third longitudinal. The third section of the costal vein is nearly as long as the second. The hind metatarsi are but slightly dilated, and about three-quarters of the length of the second joint. The hind tibiæ are nearly bare. The fore tibiæ have some slight bristles, not so stout as those on the middle tibiæ.

The following species have been omitted as not inhabiting New Zealand:—

Pelecorrhynchus ornatus, Schiner = *P. personatus*, Walker from Queensland.

- Comptosia bicolor*, *Macquart*; East Australia (Macquart), Auckland (Reise der "Novara").
Comptosia fasciata, *Fabricius*; Polynesia (Fabr.), Auckland (Reise der "Novara").
Lampria ænea, *Fabr.*; Solomon Islands and New Ireland (Macquart), New Zealand (Nowicki).
Midas macquarti, *Schiner*; East Australia (Macquart), Auckland (Reise der "Novara").
Promachus floccosus, *Kirby*, Trans. Ent. Soc. London, 1884, p. 273.
Syritta oceanica, *Macquart*; Tahiti and New Zealand (Bigot).
Hystericia orientalis, *Schiner*; Auckland (Reise der "Novara").
Demoticus australiensis, *Schiner*; Auckland (Reise der "Novara").
Micropalpus brevigaster, *Macquart*; Tasmania (Bigot), Auckland (Reise der "Novara").
Chlorogaster ruficeps, *Schiner*; Auckland (Reise der "Novara").
Rutilla leucostica, *Schiner*; Auckland (Reise der "Novara").
Rutilla pelluceus, *Macquart*; Australia (Macquart), Auckland (Reise der "Novara").
Bothrophora zelebori, *Schiner*; Auckland (Reise der "Novara").
Microtropesa sinuata, *Donovan*; Tasmania (Macquart), Auckland (Reise der "Novara").
Amenia leonina, *Fabricius*; Australia, New Zealand (Reise der "Novara").
Amenia parva, *Schiner*; New Zealand(?) (Reise der "Novara").
Dexia rubricarinata, *Macquart*; Tasmania (Macquart), Auckland (Reise der "Novara").
Idia murina, *Schiner*; Auckland (Reise der "Novara").
Calliphora violacea, *Macquart*; Africa (Macquart), New Zealand (Nowicki).
Lamprogaster strigipennis, *Macquart*; Australia (Macquart), Auckland (Reise der "Novara").
Lamprogaster cærulea, *Macquart*; Sydney (Macquart), Auckland (Reise der "Novara").
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